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WHERE ARE WE GOING?

MEDICINE IN A PLANNED ECONOMY

BY

FFRANGCON ROBERTS, M.D.

**Honorary Physician in Charge of Douty X-ray Clinic, Addenbrooke's Hospital, Cambridge*

It is a truism to say that the last fifty years have witnessed a revolution in public health. Many diseases we have exterminated, others we have learnt to cure, others again we have learnt to control; puerperal and infant mortality have diminished, the expectation of life has risen, and the standard of personal, domestic, and public hygiene has improved beyond recognition. Our pride in these achievements, however, should not blind us to the other side of the picture—the rapidly mounting cost of the medical services both in money and in man-power. At any time this remarkable paradox would provide a subject of great academic interest; in our present economic plight it becomes a matter of grave national concern.

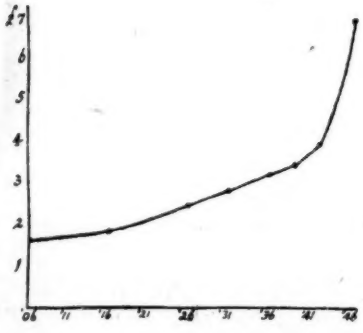

FIG. 1.—Addenbrooke's Hospital. Cost per in-patient per week in pounds.

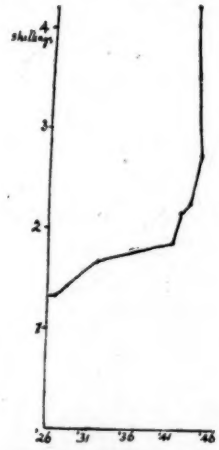

FIG. 2.—Cost per out-patient per attendance in shillings.

The expansion of medicine is visible to all. With a population almost at its maximum practitioners have increased in the last twenty years by 50%. Many new hospitals have been built and others enlarged and upgraded. Hospital beds, having reached the figure of 600,000, need to be supplemented by a further 200,000. To the increasing army of nurses has been added a large force of auxiliaries which barely existed a generation ago—radiographers, almoners, dietitians, speech-therapists, laboratory technicians, occupational therapists, orthoptists, hospital physicists, masseuses, physiotherapists, child-guidance workers, clinical photographers, records officers, health visitors, and psychiatric social workers—classes which are being added to almost yearly.

The existence of this increase is of course well known. What is not realized is the acceleration. Figs. 1 and 2 show the rapidly mounting cost per in-patient per week and per out-patient per attendance, respectively, at Addenbrooke's Hospital, Cambridge. The *Hospital Year Book* shows that a similar rise is occurring throughout the country. While it is partly accounted for by the general rise in wages and cost of equipment, it is mainly due to the increase in the amount of work done per patient. In 1897 106 beds were served by four physicians, four surgeons, and two residents; in 1922, with 170 beds, the total staff numbered 16; in 1947, with 315 beds, it numbered over 70 (Fig. 3). These figures, however, grossly underestimate the increase in man-power, for they take no account of the assistance which the staff now receives from the host of auxiliaries or the greatly increased work done by members of the staff compared with that done by their predecessors, who were mainly occupied with general practice. Although there has been some increase in the population this has been offset by the opening of a new hospital in the area and the enlargement and up-grading of others. In spite of this, demand has outstripped supply, for the waiting-list has risen in the last ten years from 228 to over 1,500. The necessity for the increase in staff will be realized from the increase in the work of one department alone. Since 1927 the total pathological examinations have increased 33 times (Fig. 4) and the blood

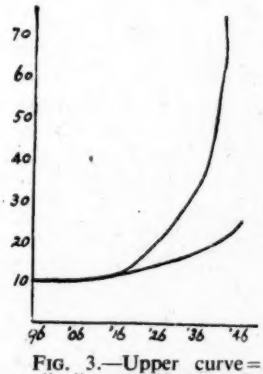

FIG. 3.—Upper curve = medically qualified staff; lower curve = medically qualified staff per 100 beds.

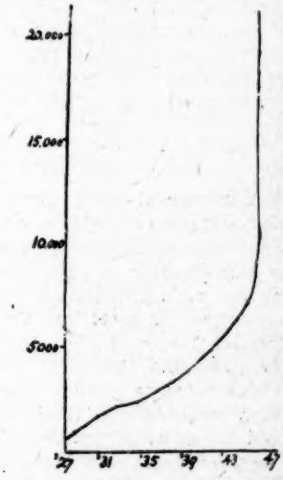

FIG. 4.—Number of pathological examinations.

counts 50 times (Fig. 5). These figures again underestimate the true increase, since examinations have become more complex. Parallel figures could doubtless be produced by other hospitals. Taking the country as a whole we see in Fig. 6 the rise in the numbers on the *Medical Register*. Twenty years ago the annual increase was 600; it is now

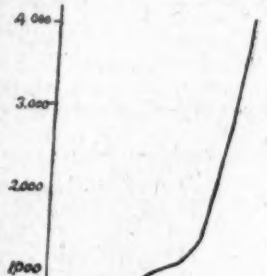

FIG. 5.—Number of blood counts.

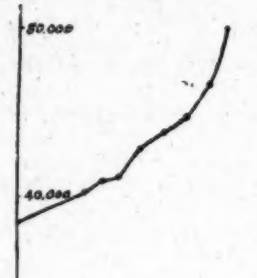

FIG. 6.—Numbers on the *Medical Register*.

over 2,000. In fact, whatever medical activity we plot against time we find the same result: *acceleration towards infinity*.

Can we see any sign of a limit to this trend? There are four directions in which we can look: the stabilization of the population, the repair of past neglect, the improvement in social conditions, and the advancement of science.

Stabilization of Population

Since the figures given above show that the rise is mainly due to the increased medical requirements of each patient it is clear that nothing short of a substantial decline in population could operate as a limiting factor.

Repair of Past Neglect

It may be thought that we are making up for lost time and that stabilization will be reached when we have accomplished this task. This, however, is true only to a limited extent. It is a misreading of history to think that our forerunners were neglectful in providing the necessary requirements. Sixty years ago there was barely any need for hospitals, because domiciliary treatment was as efficient as hospital treatment. If we look back we find this general rule: every new development has appeared as a small increment, and its provision has always been regarded *at the time* as amply sufficient for existing needs and a matter for pride and congratulation. When, in 1915, the Governors of Addenbrooke's Hospital built two small rooms for radiology and electrical treatment combined they described the accommodation as "commodious." To-day a floor-space twelve times as great is considered inadequate. At all times estimation of future requirements can be made only in terms of the leeway to be made up and in the light of the existing state of medicine. The developments which are in store, even in the immediate future, are hidden from us. We know neither the form they will take nor the provision which they will need. All we know is that they are certain to come.

Improvement in Social Conditions

The relation between the standard of living and the incidence of disease is complex in the extreme. In theory we should expect a diminution in disease when the whole population is adequately fed, housed, clothed, and educated. In practice, however, several factors operate powerfully to prevent this happy consummation. In the first place we have to admit our failure to establish any causal relationship between social conditions and most of the major diseases which fill the hospitals. Secondly, as civilization, or at least our conception of it, advances, rational practice becomes complicated by extraneous considerations. There is the threat of litigation and censure, which among its other effects has resulted in the routine *x*-ray examination of even the most trivial injuries. As the man in the street becomes familiar with the many similar tests which are rapidly being added, the threat of litigation will increase. Now that in almost every family there is at least one person who, being a masseuse, speech therapist, orthoptist, or whatnot, is in the best position to speak with authority on medical matters, this threat may reach formidable proportions. Investigations inspired by fear of litigation are inessential by-products of the healing art, imposed upon it by modern society. The threat to economy lies not in the premiums paid, nor in the expenses incurred by the protection societies (which can doubtless look after themselves), but in the enormous expense of examinations made not because of their clinical necessity but from fear of savage penalties. The time has come when we simply cannot afford the wholesale radiography of trifling injuries because one in a million may become the subject of litigation. A situation which should be ours to control has passed into the hands of the lawyers. The courts will have to accept the plea of reasonable care against accusations based on conventional procedures. Moreover, practitioners are increasingly pressed for the performance of investigations which they know to be useless under the circumstances. Refusal is difficult, since any subsequent calamity will, however unjustly, be ascribed to their obduracy. In private practice concessions to prejudice are permissible, since the cost is borne by the patient, but it will be interesting to observe whether, with free medical attention for all, specific methods of investigation will be demanded by patients as a right.

Thirdly, as the standard of living rises people increasingly fail to distinguish between essentials and non-essentials, and tend to judge efficiency by the standard most obvious to them—namely, the fal-lals. I have often heard patients sing the praises of the cottage hospitals (to which they should not have been sent) on account of the homely atmosphere there created. In particular, women value the "dainty teas" in which these institutions specialize. Admission to hospital is coming to be looked upon as a desirable thing in itself, and it is remarkable how this idea has unconsciously crept into common parlance. Recently at a meeting of a friendly society a member, complaining of the long waiting-list for admission to the local hospital, said that several hundred members *wanted* to be admitted. A business man in comfortable circumstances and robust health, speaking of the advantages of the general hospitals over the nursing homes, said he *looked forward* to the time when he could be admitted to a general hospital. At the present time admission to hospital is in many cases essential merely because domestic difficulties make the necessary investigation and treatment impossible to carry out at home. While we may hope that circumstances will improve in course of time, it is to be feared that admission to hospital will meanwhile have become a habit too deeply ingrained to be easily eradicated. If we make hospitals more comfortable than homes in inessentials it will be a sign of regression, not of advance, in civilization; it will be a reversion to the days when our ancestors found in the monastic infirmaries a refuge from the insecurity of their wattle huts. In short, whatever reasons may exist for hoping that a rise in the standard of living will diminish the incidence of disease, there is every reason to fear that it will increase the incidence of treatment.

The Advancement of Science

The most reasonable hope for the diminution of disease may seem to lie in the advancement of science. The astonishing growth in our knowledge about the natural history of disease is, however, no measure of the speed at which we are finding the causes of disease. Medical research is peculiarly obedient to the law of diminishing returns. In the first place, unlike most other sciences, which stretch forth into a boundless ocean, its sphere is very definitely circumscribed. In the last resort it is up against the inevitable; its concern is the postponement of a natural termination, and it is significant that in the new science of geriatrics we are interesting ourselves in the consequences of such postponement. We live in an age of increasingly

medicated survival. Secondly, our most dazzling successes have concerned those noxious agencies which differ biologically from, or are extraneous to, human life rather than those which resemble or are inherent to it. Hence our triumphs have been greater over acute than over chronic ailments. Progress slows up as we come to deal with the weaknesses of the flesh. The discovery of vaccination, though undoubtedly a stroke of genius, was a simple matter suited to the crude state of science then existing. Profound as was its effect upon society, the conquest of smallpox was achieved at a cost which was infinitesimal compared with to-day's expenditure on cancer research. Thirdly, humanitarianism, while being the main inspiration of medical research, at the same time imposes upon it severe limitations. While urging us to the strife it withholds from us the use of the most powerful weapons—wholesale slaughter and breeding from immune strains—which have proved so effective and economical in the hands of the agriculturist. For these reasons medical research has, of all forms of research, the least prospect of reaching its ultimate aim.

If this view appears unwarrantably pessimistic let us appeal to the facts and consider the effects of the fruits of research upon everyday clinical practice. Of the hordes of diagnostic tests in common use very few are, like the identification of the tubercle bacillus in the sputum, discoveries of the cause of disease. By far the greatest number are tests of consequences —tests, that is to say, of the reaction of the body to some infection or disturbance of unknown nature. For the most part these tests, however valuable they may be diagnostically, only determine by-results which are brought to light by scientific and sometimes fortuitous means. They are like the flotsam which, unseen in the roaring torrent but readily visible in the eddying pools, merely indicates that some disaster has occurred nearer the source. These tests have come to be used not merely to confirm a clinical diagnosis and to settle a matter of doubt but also to discover morbid conditions alleged, on grounds however uncertain, to be responsible or associated. Witness the tests required to discover or eliminate foci of infection said to be the cause of fibrositis. They are used to make a diagnosis doubly and even trebly sure, and to prove the absence of any other diseases—a process which multiplies as new diseases, new modifications of diseases, and resemblances between diseases are discovered. We dare not make a diagnosis of neurosis without using all the appropriate tests to eliminate beyond all shadow of doubt the organic diseases which it simulates, and with each test the patient becomes increasingly impressed with the reality of his complaint and prouder of its importance. Moreover, these tests are also employed at frequent intervals to gauge and control treatment, for the therapeutic seas into which we now venture are navigable only by the most vigilant pilotage of the laboratory. The truth is that, at any rate in regard to chronic disease, cure is being more and more outstripped by treatment, and there is no sign that the situation will be reversed.

This prospect, ominous enough in itself, is rendered more ominous by the disturbing fact that advancing knowledge so often obscures rather than clears our vision. For many years radiological examination was held to provide reliable evidence of the existence or absence of a gastric ulcer. But now it is claimed that gastroscopy reveals ulcers invisible to radiology. Here is the result, recorded in the *British Medical Journal* of Aug. 9, 1947 (p. 215), of an experiment in which the same *x*-ray films of the chest were submitted to five radiologists.

> "The number of the full-size celluloid films found positive for tuberculosis varied from 59 to 100; altogether 131 films were described as positive. All five agreed that the film was positive in only 27 cases. Four were in agreement on 17 films, three on 17, two on 23, and in 47 cases only one observer described the film as positive. Further individual comparisons showed that from one-third to one-half of the films described as positive by one reader were negative according to the others. The radiologist with the smallest group of 59 positives had 31, 29, 37, and 14% of his positive films described as negative by the other four. The proportion of another reader's 100 positives labelled negative by the other experts varied from 42 to 50%.
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> "The failure of the same individual to be consistent in his judgment was even more astonishing than the variation between different radiologists. All the films were assessed for a second time at a later date by the same five readers. The proportion of first positives regarded as negative on second reading by the same expert varied from 7 to 41%, and the proportion of the second positive readings which had been called negative on a first reading ranged from 6 to 19%. The radiologist who had 59 positives originally found an additional 23 on his second assessment, but missed 4 of his own first positives."

This makes depressing reading. We are left with the impression that modern methods, with their mounting cost and complexity, while valuable in establishing a diagnosis already made by simpler means, contribute little to the elimination of doubt and uncertainty. Scientific discoveries hailed on their first appearance as fresh triumphs over Nature lead to disillusion when their limitations are realized. Artificial aids to our senses make the boundary between health and disease vaguer instead of clearer. Does our reliance on them denote a lack of faith in ourselves? Does it mean that, in the words of H. G. Wells, mind is at the end of its tether? It is like the problem of the fens. The more these are drained, the deeper they sink, and the deeper they sink the more they have to be drained, so that a time may come when the cost of drainage exceeds the value of the food grown on them.

If I appear to decry the value of research and to advocate empiricism let me say at once that nothing is further from my intention. There is a world of difference between the discriminating application of research on the one hand and, on the other, the routine performance of its technique by the unskilled and the self-confident interpretation of its results by the inexperienced. If a tree produces too much leaf we can, by ringing the bark, pruning the roots, or other devices, restrain the sap and at the same time direct it to fruit-formation. Economic factors may force us to confine the prolific sap of science, without affecting its source, to the most productive channels. While encouraging genius we must make it clear that medicine is no place for the career-plugging of mediocrity.

The Fetish of Perpetual Expansion

We have unfortunately come to accept expansion as inevitable and unending. Nobody even visualizes a time when our hospitals will be emptied instead of crowded, when the conquest of disease will lead, as it logically should, to the diminution of disease. We go further and seem to assume that such expansion is something desirable in itself. We pride ourselves on the cultivation of virgin soil rather than on the harvest. Consider, for instance, the plans recently envisaged for the development of clinical photography (within certain limits a desirable thing). According to one of its enthusiastic advocates the department of the future must have a medically qualified director, an assistant director, two photographers who must also be trained nurses, a microscopist with additional training in photomicroscopy, a secretary, an instrument mechanic, a nurse, and a porter. Accommodation must consist of one large main studio, 40 by 20 ft. (12.2 by 6.1 metres), three subsidiary studios, 15 by 10 ft. (4.8 by 3 metres), three small studios for the photography of small objects, seven dark- and accessory-rooms, a secretary's office, a filming-room, a director's room, dressing cubicles, linen-cupboards, lavatories, storerooms, and a small surgery. This, we are told, would suffice for the first three years; after that extensions would be necessary. Among the users of the department would be the welfare department, which would wish to "show the return of a healthy glow to the cheeks of a convalescent." A second enthusiast tells us that medical photography must become "a subject in our medical schools on an equality with radiology." A third tells us that the staff will need a lengthy and complete training. Spaciousness, he says, would be necessary in order to counteract "the demoralizing effect of cramped quarters." But, one may ask, were Louis Pasteur, J. J. Thomson, and Gowland Hopkins demoralized by the cellars in which their best work was done?

This is perhaps an extreme case, but it illustrates an attitude of mind from which many of us suffer. Ambition in its most virtuous form impels us to raise ourselves higher from the ground on a pyramid of ever-increasing subordinates and accommodation. We measure our success by the material growth of the things which we create, forgetting meanwhile that in many human activities, such as increase of population and exploitation of new countries, this standard has had to be abandoned. We see limit, either actual or implied, in all directions; in the wide adoption of birth control, in the world shortage of many necessities, in the control of entry to the universities, and in the predetermination of the size of the new satellite towns. We can therefore hardly maintain our faith in the inevitability of perpetual expansion in the one feature of social life whose reduction is essential to the prevention of the reduction of everything else.

The Dependence of Medicine on Economics

The idea that medicine is immune from economic laws is fostered by several factors. First, in a commodity the need for which diminishes the capacity to pay for it the laws of supply and demand cannot operate. The cost of treatment having for the great majority of the population been removed from the sphere of domestic economy and transferred first to charity and later to the State, the consumer is a third party (the doctor) who, acting in the interests of the recipient (the patient), has therefore no interest in economic considerations. Spending all he is given, he appeals for more to the supplier, who is totally incapable of judging the degree of necessity.

Secondly, life is not, as it is sometimes believed, beyond price under all circumstances. Its value increases with the danger which threatens it. When the danger is imminent people are quite unreasonable; when involved in an accident they expect doctors and nurses to appear out of the blue. The great majority of the community have in fact set the value of their lives at a very low figure, for the 4d. or 6d. per week which is the most that can be extracted from them for specialist treatment under the contributory schemes is only a very small fraction of their expenditure on the cinema, football pools, and cigarettes. That the value of life is only relative is easily proved. The appalling toll of road accidents could be reduced to vanishing-point by a decree limiting speed to 10 miles an hour. We do not take this step because it would dislocate our commerce and (let us be candid) curtail our pleasure; we prefer to improve the treatment of the results of accidents.

Thirdly, in the healing art the heart as well as the head plays a part; it cannot be conducted in the matter-of-fact manner with which we cash a cheque at a bank. Patients have strong views of their importance and behave as though the world revolved around them. The public, while granting that the medical labourer is worthy of his hire, believe that under certain circumstances, such as a railway accident, humanitarian must override financial considerations. Humanitarianism is, moreover, mixed with sentiment—a commodity which, however inexpensive and harmless it may appear, may have costly reverberations. When food distributors go on strike but graciously make an exception in favour of hospitals they make a bid for sympathy as illogical as it is mawkish. For the crocodile tears which they shed for the sick in hospital blind them to the sufferings of the sick in their homes, not to mention those awaiting admission to the hospitals and those recently discharged and in need of special nourishment. They overlook, too, the ill-health consequent upon the deprivation of food of which they are the cause.

The Economic Background

Since we can see no sign of any arrest of this accelerating expansion (let alone any reversal of the process) in stabilization of the population, in repair of past neglect, in improvement of social conditions, or in the advancement of science, and since such expansion is clearly incompatible with a contracting economy, we are forced to conclude that the limit will be determined by the available resources of man-power or cost, or both. The limit in man-power is already evident in the acute shortage of nurses, and shows signs of spreading to other sections. Improvement in the conditions of employment, however desirable, is no solution, for it only increases the cost and probably attracts less suitable entrants. Moreover, the labour market being limited, the shortage can be relieved only at the expense of productive work. As regards the cost, we must bear in mind that with the establishment of the National Health Service the State becomes a single *private* patient—John Bull. But whereas the individual private patient can deny himself the benefits of medical treatment or throw himself upon charity if the cost is beyond his means, John Bull must foot the bill. The question is, How much can he afford to pay? The answer depends upon three stark economic truths.

First, disease cannot be anything but a tax on national prosperity, however much it may benefit sections of the community. Secondly, the available resources, whether national or charitable, are only two—the surplus of agricultural produce and the surplus of exports over imports. In this country the first of these has long ceased to exist, and cannot return unless the population is substantially reduced. The absence of the second is now only too painfully apparent, but many still fail to realize that it is something far greater than a sudden and temporary calamity. It was predicted by Disraeli in 1847, and in view of the increasing industrialization of other countries it is extremely unlikely that we shall even approach the high-water mark reached on that day fifty years ago when the captains and the kings departed.

The third truth is that the standard of medical treatment is influenced by, and at the same time influences, the general standard of living. This reciprocal relationship arises from the fact that the purpose of medicine, which is the promotion of happiness and prosperity by the subjugation of ill-health, consists of two components, humanitarian and economic. Though these are interwoven in practice we must for our present purposes separate them. The humanitarian component is uppermost in the relief of suffering in the aged and infirm, though the economic component is also present if this relief is accompanied by a reduction in the number of those in attendance upon the recipients and their consequent liberation for productive work. The resources available for the humanitarian component are limited by personal or national income What we can afford to spend may, and often does, fall short of what we should like to spend. This is a hard saying, but we live in a hard world.

Suppose that 100 patients suffer from a rare disease curable only by the use of a drug costing £50,000 per patient and that there is no prospect of this amount being reduced. The £5,000,000 required to save these lives would clearly be beyond the resources of the State, for it could be provided only at a sacrifice which would involve loss of efficiency and therefore loss of health to the whole community As the State could hardly make an exception in favour of one patient no one would be saved. If, however, one patient were a millionaire he could save himself by writing a cheque for the amount. This hypothetical case

may seem fantastic, but it is only an exaggeration of what actually occurs. Recuperation in the South of France can be enjoyed by the few but is denied to the average citizen, although he is glibly promised the finest medical service in the world. Of the rare and refreshing fruit promised by Lloyd George not a single grape has assuaged any parched lips from National Health resources. A medical service provided by the State cannot be as efficient as that which the fortunate few can provide for themselves. In a beleaguered city there is a limit to which the defenders can share their rations with the infirm. If that limit is overstepped by dictates from the heart the defence is imperilled. The fear that we may have reached the danger mark is in the minds of those who now question the wisdom, from the national point of view, of the liberal allowance of milk to sufferers from dyspepsia. In regard to its humanitarian component, then, the standard of a national medical service is limited by the general standard of living. It cannot overstep that limit without adversely affecting national prosperity.

In the economic component the situation is the reverse, for here the standard of medicine directly influences the general standard of living. This component is typified in the youth who submits to the radical cure of hernia in the hope of the financial reward which will ensue from his increased efficiency. The benefit will not be confined to himself but will be felt by the whole community. Personal good becomes merged into national good. This fact indicates the amount which the State can afford to spend on the economic component. It must be less than the value of the improvement which is expected to accrue. It must show a profit in the long if not in the short run. We are often told of the annual loss of labour, expressed in man-hours, due to minor ailments, and the figures are indeed formidable. If this wastage can be reduced by research carried out centrally and capable of cheap application peripherally there is an economic gain. But if we rely on incoordinated and ill-considered peripheral action the result may well be an economic loss. If, for instance, a hospital contemplates the establishment of an auxiliary service devoted to the economic component, the reason must be economically sound. It is not sufficient to say that other (probably larger) hospitals are doing it, nor can the question, "Can we afford to do it?" be met by the fatuous rejoinder, "Can we afford not to do it?" if by this is meant, "Can we countenance the loss of prestige if we don't?" Nor, again, is the step justified if, when established, the department is used because it is there, not because it is really needed. It may be justified in three ways. First, the improvement in treatment must result in an improvement in national efficiency—in the more rapid return of the worker to industry and in a lessening of expenditure on man-power in attendance upon patients after their discharge from hospital. Secondly, the work of the medical staff must be eased so that it can deal with the same number of patients in a shorter time, with the ultimate object of making fewer doctors necessary. Thirdly, research into the causes and treatment of diseases which reduce working capacity must be thereby facilitated. This is admittedly a difficult criterion; it is sufficient here to state that it is applicable to only a few hospitals.

While I fully appreciate that in practice the humanitarian and economic motive cannot be separated, I am convinced that we cannot solve the problems which confront us unless we realize that national prosperity determines the humanitarian component and is largely determined by the economic component. The importance of the economic component is brought home to us only when man-power is short. Always implicit in the work of the military medical services, it is forced upon us for the first time during peace by the stark reality of our plight. We must constantly bear in mind that every person engaged in medicine is a person lost to the production of food and exports. Medicine is now not only a humanitarian profession but also an indirectly productive trade.

Conclusions

If my philosophy appears unduly pessimistic my answer is that economics is notoriously a dismal science and cannot be otherwise when applied to medicine. Those who think that medicine is above economic laws are destined to have their illusion rudely shattered, for a limited and planned economy obviously cannot support a health service expanding with the acceleration which medicine now exhibits. I do not pretend that the suggestions which I have made touch the main problem; still less do I expect them to command universal assent. I shall be content if I have succeeded in stimulating a realization of the situation and the disastrous consequences of ignoring it. I foresee three dangers which are by no means remote. First, money and labour will be spent on trifling ailments to the detriment of those who are seriously ill. There are indeed signs that we have already reached this stage. My realization of this danger will, I hope, absolve me from any charge of displaying in what I have written an unsympathetic view of ill-health. Secondly, individual attention and mature thought will be replaced by routine performance and reflex automatism. Responsibility beyond their capacity will be delegated to subordinates and auxiliaries, with the encouragement of that form of self-confidence which never admits ignorance. The maintenance of a high standard of practice will be greatly imperilled. Thirdly, the threat to freedom of action in our dealings with patients, a threat which we so much dread, may be forced on us not by a thirst for official control but by sheer economic necessity. When limitation becomes imperative, as it certainly will, it is surely preferable that it should be self-imposed by those who have an intimate understanding of the subtleties of clinical medicine rather than enforced by those who have only a bureaucratic acquaintance with it. In the reconstruction of our distracted world the doctor will be called upon to play a vital part, a part transcending the mere technicalities of his profession, a part which will demand, as never before, the fullest exercise of his intellectual qualities and moral influence. We rightly dread any violation by the State of the sanctity of the doctor–patient relationship, but the preservation of this sanctity depends upon the full recognition by doctor and patient alike that individual health and national health cannot be dissociated, and that intelligent but at the same time unselfish regard for his own health is not the least contribution which every citizen must make to national prosperity.

Chiropody, Theory and Practice (3rd edition, Charlesworth and Wiles, 42s.), by Franklin Charlesworth, is already well established as a useful textbook among students and practitioners of chiropody. The issue of a third edition, largely rewritten and extended, shows that it meets a demand which is likely to increase with the growth of the auxiliary medical services, including chiropody, when the Health Service starts. If the new entrants to the profession absorb all the information and carry out the precepts given in this book they will indeed become worthy practitioners, for as its title implies it is a most comprehensive production ranging over anatomy, physiology, surgery, medicine, materia medica, and theoretical and applied chiropody. However, the author has been at some pains to determine that of such vast subjects only those aspects which are of direct interest to the chiropodist have been included. The student will find here just the information he requires to cover his examination syllabus. The medical practitioner who sees and is interested in minor foot disabilities will discover much useful guidance in this volume on the possibilities and limitations of chiropodial treatment. The book is well and clearly illustrated and the production is of a high standard.

THE HEALTH OF 407 NEW STUDENTS

BY

JOHN PEMBERTON, M.D., M.R.C.P.
(From the Department of Medicine, University of Sheffield)

The publication of three recent reports on the problems of student health indicates a growing interest in this subject. Investigations have been made by the British Medical Students Association and other student bodies (1944), the Social and Preventive Medicine Committee of the Royal College of Physicians (1946), and the Conference on Student Health organized by the Nuffield Foundation (1947). These reports call attention in general terms to the existence of a good deal of ill-health among the student population and point to the need for better facilities for dealing with it. So far, however, little detailed information has been published on the nature and extent of this ill-health.

Voluntary medical examinations for students entering the University of Sheffield were introduced in 1937 and made compulsory for all new students in 1942. The aim of the medical officers who conduct these examinations in the students' first or second term has been to discover any remediable cause of ill-health and to advise them on how to obtain the appropriate treatment.

The present report describes the state of health of a group of 407 students admitted to the University in October, 1946. In addition to the medical data, certain aspects of the students' social environment are discussed in their relation to health.

Methods

The general medical examinations were conducted by a team of medical first assistants, the dental examinations by the dental registrar, and the ophthalmological examinations by the ophthalmological registrars from the Royal Sheffield Infirmary and Hospital. In addition, the woman students had a haemoglobin estimation and the medical and dental students a full-sized chest radiograph. All the students had a private "health interview" with me at the end of the various examinations. At this interview any defect or disorder requiring treatment was discussed and the student was referred to his general practitioner or, sometimes, if he had no doctor in Sheffield, to the out-patient department of the Royal Sheffield Infirmary and Hospital. During the interview a family health history was obtained and questions were asked about the student's lodgings, travel to the University, recreations, work, and sleep.

Classification of Students

In presenting the results the male students have been separated into two groups: 157 students aged 20 years and over, nearly all of whom were ex-Service men, and 153 students under 20. This separation has been effected because the ex-Service group do not constitute a normal student population and have special socio-medical problems, as is shown later. The 97 women students have not been so divided, as only 18 were aged 20 years and over. There were 372 British students, 24 European, and 11 non-European.

In order to discover whether the health of the students was related to their previous social environment the records were also classified according to the father's occupation. The Registrar-General's classification (1944) was adopted—namely, Group I, professional and upper managerial; Group II, lesser professional and managerial, retail proprietors, etc.; Group III, black-coated workers and skilled artisans; Group IV, semi-skilled workers; Group V, unskilled labourers.

Table I shows the constitution of the student group by age, sex, and occupational category of the father. The largest proportion of students (34%) were from Group III.

TABLE I.—*Age, Sex, and Social Groups of the Students*

Social Group (Father's Occupation)	Men Under 20 (153)	Men 20 and Over (157)	Women (97)	All Students (407)
I Professional and upper managerial	15%	10%	19%	14%
II Lesser professional, retail proprietors, etc.	25%	25%	29%	26%
III Black-coated workers and skilled artisans	41%	27%	35%	34%
IV Semi-skilled workers ..	10%	2%	2%	5%
V Unskilled labourers ..	3½	2½	2½	3½
Unclassified	6½	27½	11½	15½
Non-European	—	7%	2%	3%

Only in the men under 20 was there an appreciable proportion (13%) from social Groups IV and V. The women students tended to come from a slightly higher economic stratum than the men.

The Findings Analysed

Table II shows the chief causes of defective health found in the new students.

TABLE II.—*Chief Causes of Defective Health*

Type of Disorder	Men under 20 (153)	Men 20 and Over (157)	Women (97)	All Groups (407)
Dental caries requiring treatment ..	75%	65%	76%	73%
Defective vision: corrected with glasses or needing correction	36½	39½	35%	37½
Postural and other orthopaedic defects ..	38%	27%	40%	34%
Minor anxiety states or depression ..	16½	29½	16½	20½
Nervous breakdown, marked introversion, psychoneurosis, epilepsy, hysteria, schizophrenic	8%	6%	7%	7%
Ear, nose, and throat: chronic nasal obstruction, sinusitis, enlarged or inflamed tonsils, partial deafness, discharging ear	20%	24%	25%	23%
Skin diseases: acne, furunculosis, epidermophytosis, eczema, dermatitis	13%	6%	7%	9%
Pulmonary disease: bronchitis, bronchiectasis, pulmonary fibrosis, asthma, emphysema	6%	4%	3%	4%
Endocrine disorders: enlarged thyroid, hypogonadism, obesity, undescended testicle	6%	2%	6%	5%
Cardiovascular disease:				
Mitral stenosis	2%	1%	1%	1%
Essential hypertension	2%	2%	—	1%
Hypochromic anaemia (under 85% Haldane)			3%	—
Miscellaneous: varicose veins, dyspepsia, migraine, varicocele, hydrocele, hernia	1%	3%	5%	2%

Dental Caries.—This was easily the most common disorder—73% of all the students required treatment for this condition. A smaller proportion of the ex-Service group required treatment—65% compared with 75% and 76% in the other two groups. This did not reflect a lower attack rate of dental caries among the ex-Service group, but a greater amount of previous dental treatment. The attack rate, obtained by adding to the number of students with active dental caries those who had fillings but no caries, was 96% in the men under 20, 98% in the men 20 and over, and 98% in the women. The attack rate of dental

TABLE III.—*Showing the Relationship between the Incidence and Extent of Dental Caries Requiring Treatment and the Social Grouping*

Social Group	No. in Group	Incidence of Active Dental Caries	Average No. of Fillings Needed per Mouth	Average No. of Extractions Needed per Mouth
I	58	59%	1·45	0·09
II	107	74½	2·50	0·20
III ..	139	72%	2·20	0·34
IV and V ..	30	83%	3·50	0·87
Unclassified ..	62	80%	2·60	0·61
Non-European	11	55%	1·34	0

caries did not vary significantly from one social group to another, but both the incidence of untreated caries and the extent of the disease increased in the lower economic groups (Table III). It seems probable that financial considerations had prevented some of the students from the poorer social groups from obtaining dental treatment. The dental condition of the non-Europeans was better than that of any of the other groups.

Visual Defects.—Defective vision was second in order of frequency: 36% of the whole group had myopia, 31% had hypermetropia, and 3% had mixed astigmatism. In 37% (150 students) the defect was such as to require spectacles for its correction. Of these 150 students 100 were already wearing correct spectacles, 40 had incorrect spectacles, and 10 had no spectacles. There was no relationship between the incidence of visual defects and social grouping.

Orthopaedic Defects.—Some orthopaedic defect was present in 34% of the students. Most of these were postural defects of the spine or flat-foot. Their incidence is shown in Table IV. Postural spinal defects were commonest in the men under 20 and flat-foot was commonest in the women students. Two students had orthopaedic defects requiring operative treatment. Most of the orthopaedic abnormalities found were due to lack of muscle tone and physical development, and could perhaps have been prevented by better previous physical education. They emphasize again the value of adequate and easily available facilities for athletics, sports, and gymnastics as a positive contribution to student health.

TABLE IV.—*Incidence of Different Types of Orthopaedic Deformity*

Orthopaedic Abnormality	Men under 20 (153)	Men 20 and Over (157)	Women (97)	All Students (407)
Minor spinal deformities (scoliosis, kyphosis, lordosis)	22%	12%	15%	16%
Flat-foot	13%	10%	18%	14%
Miscellaneous	10%	7%	19%	12%

Mental Health

In the reports already mentioned attention has been drawn to the frequency with which minor psychological disorders are found among students. The present investigation confirms this. All the assessments of mental health were made by me after interviewing each student. Variations in assessment due to the personal factor were therefore minimized. Some 20% were found to be suffering from minor anxiety states or depression. Table V shows that the incidence of anxiety was remarkably similar in the three main groups of students.

TABLE V.—*Anxiety States and Depression (mostly minor in degree)*

	Men under 20 (153)	Men 20 and Over (147)	Women (95)	All Students (395)
Anxiety states ..	15·0%	16·3%	14·7%	15·4%
Depression	0·7%	12·3%	1·05%	5·05%
Total	15·7%	28·6%	15·75%	20·45%

It is worth while to consider the possible causes of these anxiety states. The occupation of the student is unique in so far as it is probably the only one in which those who follow it are repeatedly subject to formal tests of their fitness to continue the work. Fear of failing to pass these tests of "fitness" provides one of the main psychological stresses to which students are subject. For the present generation, further penalties may be added to examination failure, such as the loss of grants, calling up for national service, and the end of a university career. One of the manifestations of anxiety recorded was the presence of insomnia. This was marked as present if the student lay in bed more than an hour before he went to sleep or if he habitually lay awake in the night for an hour or more—34 (9%) had insomnia of this degree.

A large number (28%) of the students were "only" children, and the proportion of these increased steadily from the higher to the lower economic groups (see Table VI). It would appear that among children from poorer families those without brothers and sisters have a better chance of reaching university than those from larger families. This type of student—the only child from a poor family—is especially likely to feel a heavy burden of responsibility and indebtedness towards his family which may add to his anxieties.

TABLE VI.—*"Only" Children*

Social Group	No. in Group	Percentage of Only Children
I	52	11·5
II	98	27·5
III	134	34·2
IV and V	30	50·0
Unclassified	53	13·8
Total	367	28·3

The following excerpts from the students' health records briefly illustrate how some of these anxiety states in students can develop.

A. B., aged 18. Father died 10 years ago. Mother goes out to work; one brother and one sister. States he is "worried about getting thrown out" if he fails his exams. Works every evening, including Sundays.

C. D., aged 28. Was in Services for 6½ years. States he has no time for recreation. Suffers from insomnia; takes an hour to get off to sleep. "It's all this studying. It's a strain getting back to work again after all this time in the Army."

E. F., aged 33. No time for recreation. "I'm not letting up on myself: I've got to complete this course. I work on at night till I can't work any more."

Depression was twelve times as common in the ex-Service group as in the other two groups of students. The interviews suggested that the chief cause of the relatively high incidence of depression in the ex-Service group was the difficulty these students experienced in adjusting themselves to civilian life. Many of them had occupied active and important positions in the Forces, and some were not unnaturally dissatisfied with what seemed to them the relatively unimportant role of a university student. Of the ex-Service group 25% were married, and half of these had children. To these responsibilities were added the difficulties associated with finding accommodation for their families in or near the city.

In addition to the cases of mild anxiety states and depression eight students were diagnosed as psychoneurotics, two as hysterics, 14 were markedly introverted, one had had a recent nervous breakdown, one suffered from epilepsy, and two showed evidence of early schizophrenia. Many of the students with the minor anxiety states and depression will probably lose these as they become adapted to university life and succeed in proving to themselves that they are adequate for the tasks before them. It is among the psychoneurotics and schizophrenics that the long-term problems are to be found.

Organic Disorders

Organic defects and disorders have been classed as major if they were considered likely to prevent the student from participating fully in university life, and minor if they were not sufficiently serious to do that.

Some major organic disorder was found in 9%, and in this group pulmonary conditions were the most frequent, accounting for nearly half. Five students had chronic bronchitis, five asthma, four bronchiectasis, four pulmonary fibrosis, and one emphysema. Most of the group stated that their illness had started with a previous attack of pneumonia. They illustrate the chronic invalidity which too often follows this disease. Next in importance came the group with cardiovascular disease. Four students (1%) had mitral stenosis and four had essential hypertension (blood pressure 150/100 or above). It is worth recording that 35 students (9%) had innocent cardiac murmurs and three had persistent albuminuria for which no cause could be found. No case of pulmonary tuberculosis was discovered among the 76 medical and dental students who underwent chest radiography or in the remaining 331 students at the general medical examination.

Among the women students and men under 20 major organic disorders were more common in those from the lower economic groups than in those from the higher groups. The men over 20 were of course a physically selected group. Six of the 19 men under 20 (33%) from social groups IV and V suffered from a major organic disorder, compared with 9% in the whole group of students. Of these six students two had mitral stenosis, one bronchiectasis, two chronic bronchitis, and one asthma.

In 40% a minor organic disorder, excluding dental caries, defective vision, and orthopaedic conditions, was found. These mostly consisted of affections of the ear, nose, and throat, or of the skin. Some 23% suffered from chronic nasal obstruction, sinusitis, enlarged or inflamed tonsils, partial deafness, or discharging ear; 9% had skin conditions such as acne, furunculosis, epidermophytosis, eczema, or dermatitis. These skin conditions occurred twice as often in men under 20 as in the other groups (Table II).

The average haemoglobin value of the 95 women tested was 98.6% (Haldane). Three cases of hypochromic anaemia were found, however, with values of 68, 80, and 84%. After treatment with iron for six to seven weeks these values became normal—102, 96, and 102% respectively.

Examples of minor disorders of the endocrine glands were not uncommon, especially in the younger groups: 6% of the men under 20, 6% of the women, and 2% of the ex-Service group had conditions such as diffuse enlargement of the thyroid, hypogonadism, obesity, or undescended testicle. There appeared to be no relationship between the incidence of minor disorders and social grouping.

Conclusions

A considerable proportion of the 407 students examined had some physical or psychological defect or disorder. Although in most cases these disabilities were not serious, they were sufficient to reduce the efficiency and well-being of many students. The findings indicate that in the development of student health schemes, in addition to medical examinations of new students, provisions for the active medical treatment and supervision of university students need consideration. The high incidence of dental disease and defective vision points to the need for special provisions with regard to these conditions. A medical officer in charge of student health may expect to be frequently consulted by students on account of anxieties often disguised by some physical complaint such as vague pain in the chest. If he is to treat them successfully it is essential that he should be interested in them not only as patients but also as individuals who are developing rapidly and are not infrequently subjected to considerable physical and psychological strain.

The frequency of postural and other orthopaedic defects raises the question of the value of compulsory physical education such as has been introduced for freshmen in at least one British university. Routine haemoglobin estimations on women students followed by treatment of the cases of hypochromic anaemia discovered is a worth-while procedure.

There will probably always be students who enter university with serious and permanent physical handicaps such as mitral stenosis or bronchiectasis. A students' health service and the initial medical examinations should not be used to exclude such students, but rather by advice and careful supervision it should enable them to make the best use of their university career.

Finally, student health centres could become valuable field stations for university departments of social medicine. In them, for example, studies of normal variations in structure and function could be made, and methods developed for the early detection and prevention of disease in the young adult population.

Summary

The results of the compulsory medical examinations of 407 new students are presented.

Dental disease, defective vision, postural faults, and minor psychological disorders were the commonest conditions found.

The various factors contributing to the development of anxiety and depression in students are discussed together with some aspects of the students' social environment.

The need for the further development of student health services to include the provision of medical and dental treatment when required is re-emphasized.

I wish to thank all those whose careful observations and records made this study possible. The general medical examinations were carried out by Drs. R. Bosenberg, F. Flint, R. T. Gaunt, J. F. Goodwin, L. Nancekievill, M. H. Stewart, and W. D. Wallace; the ophthalmic examinations by Drs. W. Ingman, M. W. Paterson, A. Smith, and N. S. Warwick; the dental examinations by Mr. R. Rastall; the radiological examinations by Drs. J. L. Grout and J. Wilkie; and the haemoglobin estimations by Dr. H. J. Barrie. I am indebted to Prof. C. H. Stuart-Harris for helpful suggestions; to the authorities of the University of Sheffield for permission to publish this report; and to Miss B. I. Richardson, who gave valuable assistance in its preparation.

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The second edition of Mr. Harry Hill's *Pasteurisation* (H. K. Lewis, 21s.) is to be welcomed. Most of the faults of the earlier edition have been remedied, and numerous illustrations and figures have been included to clarify the sections on plant design and control. The size of the book has been nearly doubled. There is an interesting description of the Hemming–Howell heating unit for the treatment of milk in churns on the farm, though it would be interesting to know more about the effectiveness of this method under practical working conditions. Like most idealists, the author favours the adoption of the "in-bottle" method of pasteurization, and he forecasts the adaptation of the H.T.S.T. process to the heat treatment of milk in bottles. Whether he is on such safe ground in recommending the increased use of irradiated milk is more doubtful; the possible danger to adults of consuming unlimited quantities of vitamin D is not considered. This book can now be recommended without hesitation to those who want to learn something about the methods of carrying out pasteurization and the subsequent treatment of pasteurized milk. It is, however, alarming to be told in the preface and again on p. 229 that "all methods of pasteurization carried out in this country are not satisfactory." This general condemnation is surely unjustified, and we hope that what the author really means is that not all methods of pasteurization are satisfactory. Perhaps an alteration to this effect might be made in the next edition.

THE RECOGNITION OF TOXICOGENIC BACTERIAL STRAINS IN VITRO

BY

STEPHEN D. ELEK, M.D., D.P.H., D.C.P.

(From the Department of Bacteriology, St. George's Hospital Medical School)

The detection of toxicogenicity *in vitro* has not in the past proved a practical proposition for routine purposes, and this paper is concerned with a new technique which, it is believed, makes this possible. In diagnostic bacteriology most pathogens are recognized by their cultural and biochemical properties, and are finally characterized by serological study of their antigenic structure. In those groups of organisms which produce disease through the agency of exotoxins the surface antigenic pattern is of little diagnostic use, and final recognition is effected by specific serological neutralization of the toxin in a susceptible experimental animal. Clearly a rapid test is required to bring exotoxin-producing organisms into line with those which can be identified serologically. Technical difficulties have, however, prevented the use of *in vitro* toxicogenicity for diagnostic purposes. The lecithinase action of the alpha toxin of *Clostridium welchii* is an exception to the rule that toxins rarely produce convenient effects *in vitro*. Flocculation of diphtheria toxin with its homologous antitoxin was first demonstrated by Nicolle, Césari, and Debains in 1920 and is widely used for titration of antitoxin (Ramon, 1922), but the procedure in its original form is too complex for routine identification of toxicogenic strains.

Petrie and Steabben (1943) introduced a technique for the identification of the pathogenic clostridia of gas-gangrene in plate cultures. Crude specific antitoxic serum was incorporated in an agar-base medium designed to yield abundant toxin production. After prolonged anaerobic incubation the plates were left at room temperature, and under these conditions a ring of opacity developed around the colonies of a toxicogenic strain in the presence of the homologous antiserum. The zone of opacity was shown by the plate microscope to consist of Liesegang rings, and was accepted as a specific reaction.

The same workers attempted to employ this technique for the recognition of toxicogenic strains of *Corynebacterium diphtheriae*, but the results were unsatisfactory. Repetition of their experiments suggested to me three main reasons for the failure. In the first place, isolated colonies produce only minute amounts of toxin even after prolonged incubation. Secondly, as flocculation occurs only within a narrow zone, and as both toxin and antitoxin excess may inhibit the reaction, it is necessary to adjust the antitoxin content of the plate most carefully; strain variations in toxicogenicity make it very difficult to gauge the antitoxin concentration so as to be within the optimum range. Thirdly—and this is perhaps the most serious difficulty—certain aerobic and anaerobic organisms may produce a zone of opacity around their colonies when grown in serum-agar media. Clearly this non-specific reaction may lead to erroneous interpretation, especially as a number of strains of *C. diphtheriae* produce concentric rings irrespective of whether they are toxicogenic or not. The methods described below were devised to overcome these difficulties and to place in the hands of laboratory workers a technique which it is hoped will find a useful routine application.

The New Technique

In working out this technique three principles have had to be considered: to obtain maximal and rapid toxin production; to produce an antitoxin gradient in the medium so as to give a reaction with varying toxin concentrations; and to provide non-specific serum constituents in sufficient quantity to make the flocculation reaction easily visible. The nutritional and gaseous requirements for rapid toxin production in most toxicogenic organisms are well known. In the case of *C. diphtheriae* a modified Pope's medium was found suitable, whereas for staphylococci a slight modification of Walbum's medium proved satisfactory. Inoculation in the form of a wide streak will yield *pari passu* with increased bulk of growth far more toxin than a single colony. The minimum length of incubation can be determined only by experiment: it is the shortest time which will reveal all virulent strains as toxicogenic.

The required antitoxin gradient can be achieved by the simple method of placing on the surface of the medium a strip of filter paper moistened with commercial antitoxin in suitable dilution. The concentration of antitoxin at any point on the plate is determined by the laws of diffusion governing this complex system, and varies from a maximum (corresponding to the concentration of the antitoxin used) to a minimum in the part of the plate most remote from the strip. In order to provide non-specific serum constituents in sufficient quantity to make flocculation reaction easily visible it has been found better to incorporate 20% normal horse serum in the medium rather than to rely on the constituents of the crude antitoxic serum, which diffuse at a different rate from the immune globulins.

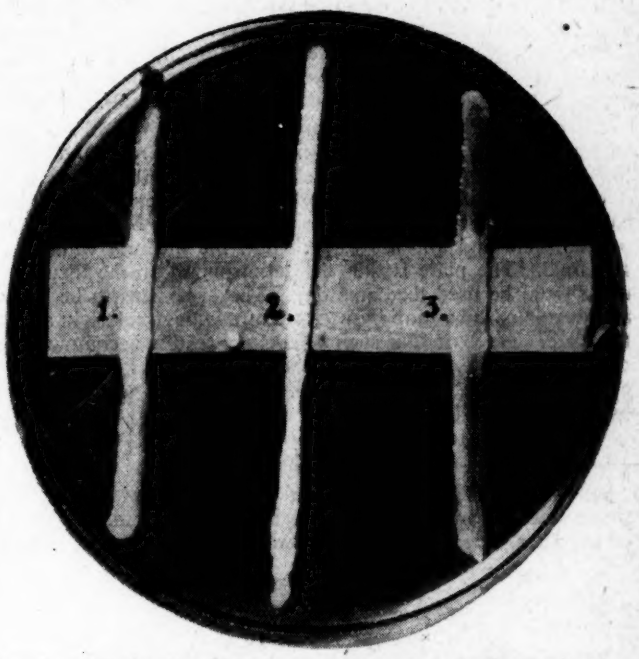

FIG. 1.—Completed test with corynebacteria. Strain 1=positive control; strain 2=non-toxicogenic; strain 3=toxicogenic.

If the organism to be tested is inoculated in the form of a wide line at right angles to the filter paper the toxin produced by the organism will diffuse out in descending concentrations, just as the antitoxin diffuses from the filter strip. In these circumstances the points of optimum proportions for toxin-antitoxin reaction fall on a continuous line, and the flocculation which occurs along this line provides striking graphic representation of the law of optimal ratios. On each side of the inoculum a white line develops at an angle, so that a toxicogenic strain becomes virtually marked with an arrow-head (Fig. 1).

The principles outlined above have been adapted for the examination of *C. diphtheriae* and staphylococci, and the special procedures for these organisms are detailed below; the technique, however, should be capable of adaptation for any toxicogenic organism—aerobic or anaerobic. Furthermore, it is possible that substances diffusing from bacterial cultures, but not commonly regarded as exotoxins, can also be used for purposes of recognition if suitable antisera are employed.

Method for Examination of C. diphtheriae

Materials.—The medium is prepared by dissolving 4 g. of protose-peptone ("difco"), 0.6 g. of maltose, and 0.14 ml. of lactic acid (*B.P.*) in distilled water. The volume is made up to 100 ml. and the *p*H adjusted to 7.8. A 3% solution of agar in 1% sodium chloride is cleared by filtration through paper pulp and its reaction is adjusted to *p*H 7.8. It is further clarified by treatment with charcoal, and again filtered through pulp. Equal parts of the peptone and agar solutions are mixed together and distributed in 10-ml. quantities, which are sterilized by steaming for 30 minutes on three successive days. The antitoxin used is refined diphtheria antitoxin globulins (Burroughs Wellcome and Co.) diluted with physiological saline to a concentration of 1,000 units per ml. The filter-paper strips are prepared from sheets of good quality filter paper (Postlip 633 was used). This is cut into strips measuring 6 by 1.5 cm. and these are placed in a plugged test-tube and sterilized in the hot-air oven.

Procedure.—Plates are prepared by melting 10 ml. of the medium, adding 2 ml. of sterile normal horse serum, and pouring into 3½-in. (8.75-cm.) Petri dishes. A sterile filter-paper strip is now dipped in diluted antitoxin, and after excess antitoxin has drained off it is laid across the surface of the freshly poured plate and allowed to sink into the medium while it is still fluid. The plate is then dried thoroughly in the incubator and should be used the same day. The organisms to be tested are inoculated by a loop in the form of a wide streak right across the plate. Three or four such streaks are readily accommodated on a single plate, and each set should include a known toxicogenic strain as a positive control. The plate is incubated and examined after 24 and 48 hours.

Results

A positive reaction is denoted by the appearance of fine white lines forming an arrow-head within 1/2 in. (1.25 cm.) of the filter paper and pointing towards it. It makes its appearance after about 22 hours' incubation in some strains, and in its earliest stages has to be sought with a hand lens. It is best seen by reflected light against a dark background. After 48 hours the arrow-head is easily visible to the unaided eye by transmitted light. A completed test is shown in Fig. 1.

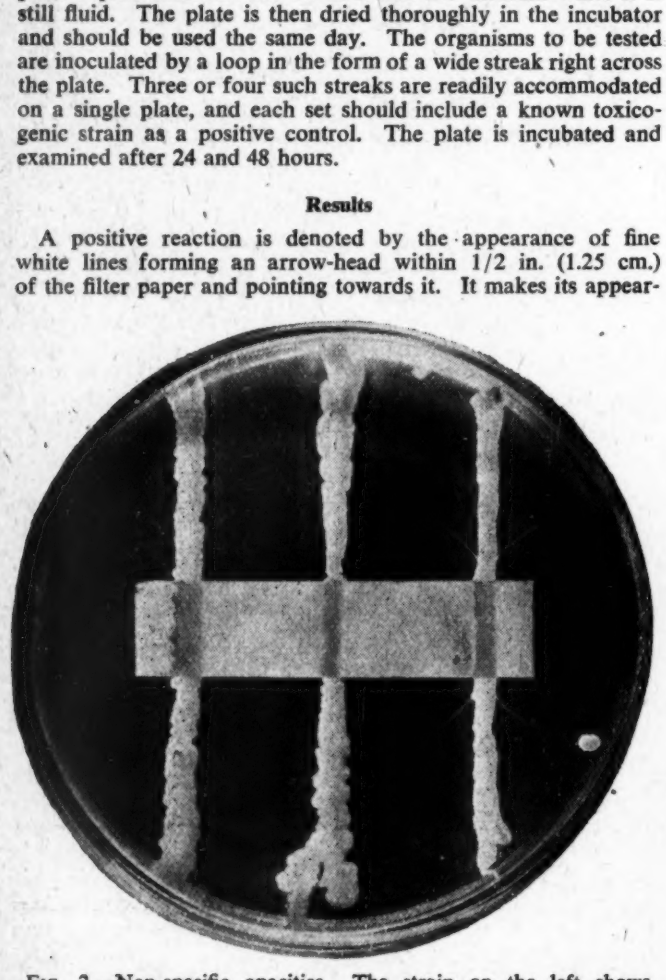

FIG. 2.—Non-specific opacities. The strain on the left shows opacity and arrow-head formation (toxicogenic); the centre strain shows opacity only (non-toxicogenic); the strain on the right shows arrow-head only (positive control).

If the plates are left at room temperature the density of the lines gradually increases, but secondary lines may develop which possibly represent the interaction of bacterial substances diffusing out from the growth with antibodies corresponding to them present in the serum. The presence of such antibodies may be assumed from the fact that the material used for the immunization of animals contains numerous substances in addition to the toxin itself. These secondary lines may appear with both toxicogenic and non-toxicogenic strains, and with the latter might lead to difficulty in interpretation. If, however, the final readings are made directly after 48 hours' incubation no confusion arises from this cause, as several days at room temperature are required to bring out the secondary lines. Even then they are very soft, and their detection usually requires the aid of a lens.

The plate shown in Fig. 2 demonstrates that the opacity produced in serum media by certain strains of corynebacteria is independent of toxin production. The strain on the left shows opacity and the arrow-head denoting toxin production; the strain in the middle shows the opacity but no toxin-antitoxin line. The right-hand strain (the positive control) shows the arrow-head only. On standing at room temperature these opacities lose homogeneity and become distributed in the form of concentric denser and clearer areas resembling Liesegang rings. Clearly the development of rings cannot be accepted as proof that a toxin-antitoxin reaction is taking place.

Results of Tests on 20 Strains of Corynebacteria

Strain No.	Origin and Type of Organism	Animal Virulence Test	*In vitro* Test	
			24 hrs.	48 hrs.
1	W.I. No. 77	Virulent	+	+
2	Diphtheroid, St. Geo. Hosp.	Avirulent	−	−
3	W.I. No. 90	Virulent	+	+
4	L.C.C. 11680, gravis	,,	+	+
5	L.C.C. 11674, gravis	,,	+	+
6	St. Geo. stock, gravis ..	,,	−	+
7	L.C.C. 12224, mitis	Avirulent	−	−
8	L.C.C. 12151, mitis	,,	−	−
9	L.C.C. 12494, gravis	Virulent	+	+
10	L.C.C. 12511, gravis	,,	−	+
11	L.C.C. 12594, mitis	Avirulent	−	−
12	L.C.C. 12595, mitis	,,	−	−
13	L.C.C. 12597, mitis	,,	−	−
14	N.C.T.C. 3985, gravis ..	Virulent	−	+
15	N.C.T.C. 3986, gravis ..	,,	+	+
16	N.C.T.C. 3988, intermedius ..	,,	−	+
17	N.C.T.C. 3989, mitis	,,	−	+
18	L.C.C. 12825, mitis	Avirulent	−	−
19	L.C.C. 12826 gravis	Virulent	+	+
20	L.C.C. 12828, mitis	,,	+	+

W.I. = Wellcome Institute.
L.C.C. = London County Council, Southern Group Laboratories.
N.C.T.C. = National Collection of Type Cultures.

The accompanying Table shows the results obtained with this test on 20 strains of corynebacteria, all but one of which (No. 2) gave typical morphological and cultural characters of *C. diphtheriae*. Of the 13 virulent strains eight showed a positive reaction in 24 hours, while with the remaining five the reaction became positive only after 48 hours' incubation. None of the seven avirulent strains showed a positive reaction after 48 hours.

Method for Examination of Staphylococci

With the staphylococci ability to form a toxin is clearly not the sole factor determining virulence, since these organisms invade the body. Nevertheless a simple procedure for the detection of toxicogenicity might well prove to be of value for both clinical and experimental purposes. That staphylococcal toxin-antitoxin reaction can be recognized in an agar plate was shown by an accidental observation made in 1944 on a routine plate (Fig. 3). A method similar to the one described for the diphtheria bacilli was devised and tried in a small number of cases.

Materials.—The medium used consists of heart-infusion broth (difco) to which 0.2% potassium acid phosphate (KH_2PO_4) and

0.03% magnesium sulphate ($MgSO_4$) are added. Both salts are used crystalline. The *p*H is adjusted to 6.8, and the broth, which is somewhat yellow, is clarified with charcoal. Agar is now added to a concentration of 1.5% and the medium filtered and clarified in the usual way. It is distributed in 10-ml. quantities in tubes and sterilized in the autoclave. For antitoxin refined staphylococcal antitoxin globulins (Burroughs Wellcome and Co.) are employed, diluted so as to contain 1,000 units per ml.

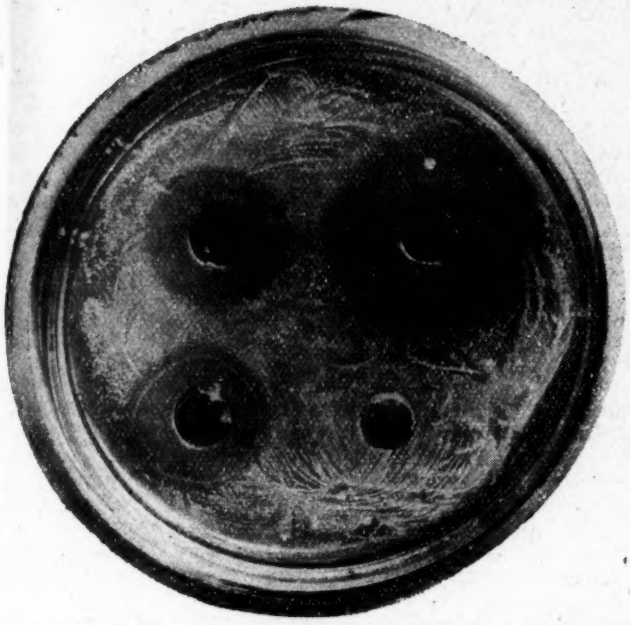

FIG. 3.—Routine plate showing staphylococcal toxin-antitoxin reaction. Plate inoculated with patient's strain of *Staph. aureus*. Upper cups contain penicillin solution (1 and 5 units per ml.); lower cups contain pus from patient's abscess—the left shows presence of penicillin and a ring believed to be a toxin-antitoxin reaction.

Procedure.—This is precisely as in the former method, except that normal horse serum is not incorporated in the medium, as its addition was not found to improve the reaction. Readings are taken with a lens after 48 hours' aerobic incubation. The effect of incubation in an atmosphere of carbon dioxide was not tried.

Results

The lines which form with toxicogenic strains are multiple and are fainter than those formed with *C. diphtheriae*, so that their presence has to be sought with the aid of a hand lens. A typical plate is shown in Fig. 4. The test has been applied to 32 strains of staphylococci. Of these nine were obtained from the fingers or were obviously contaminants on plates, and only one—an *aureus* strain obtained from the hand of a laboratory worker—gave a positive result in 48 hours. Ten strains, being obtained in pure culture from typical staphylococcal lesions, were assumed to be pathogenic, and nine of them gave positive results in 48 hours. The remaining 13 strains were obtained in the course of routine work from various sites and three of them failed to give a positive reaction.

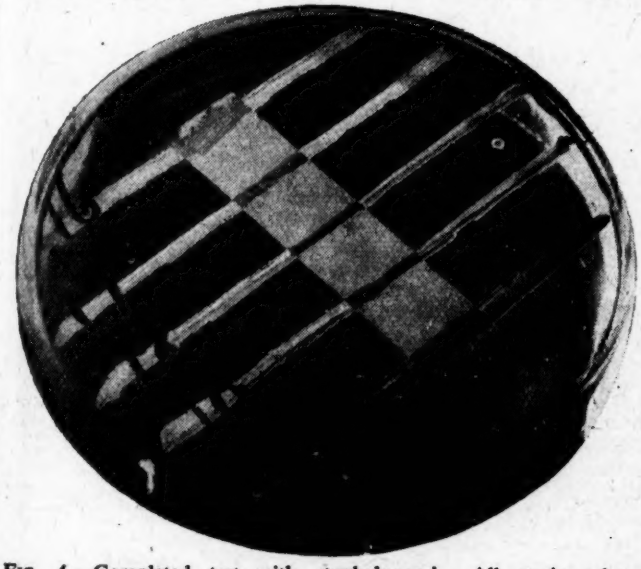

FIG. 4.—Completed test with staphylococci. All strains show multiple line formation.

Discussion

The application of these methods has not yet reached a stage at which detailed discussion of the results would be profitable, and the object of this paper is to present the new *in vitro* technique and to indicate directions along which development is possible.

Clear-cut results have been obtained with a small series of *C. diphtheriae* strains, and they show that there is a high correlation between *in-vitro* toxicogenicity as detected by this test and the so-called "virulence" as detected by the usual guinea-pig test. It is a generally accepted fact that pathogenicity is not a good basis for bacteriological classification, as virulence is not a permanent intrinsic property of a given species. It is, however, precisely this point which is of paramount interest to the medical bacteriologist: to him a non-virulent strain is not a "true" representative of the species, and is indeed the worst nuisance, since its unimportant character is revealed only after lengthy investigations, involving animal experiments. Animal tests have numerous disadvantages in a routine laboratory, and it is hoped that the *in-vitro* test may well prove of practical value on account of its great simplicity and the relatively short time needed to obtain the result.

Once an organism has been assigned to the *Corynebacterium* group on morphological grounds and grown in pure culture the test can be applied without investigating the biochemical properties of the strain and without classification as regards its type, as the specificity of the reaction with diphtheria antitoxin is axiomatic. Theoretically not every toxicogenic strain need be virulent. If this differentiation really does exist between the *in-vitro* and the animal test a larger series of parallel tests should reveal this. As, however, every virulent strain is by definition toxicogenic, from the utilitarian point of view there is no source of error in the test. Clearly, further work is needed to establish whether or not this test can be relied upon to replace the accepted virulence tests in practice.

The results with the staphylococci are less well defined, but here again there is high correlation between a positive test and clinical pathogenicity. In addition to the possible use of the test in clinical bacteriology the procedure may prove to be of value in investigating the diffusible products of staphylococci. The multiplicity of lines developing with the positive strains suggests the presence of several interacting substances and clearly requires further study.

Without substantial modification the same technique can be used for the identification of the anaerobes by means of their specific toxins. The technique should also be capable of wide application to other groups of organisms by investigating diffusible antigenic substances produced by the culture but not usually regarded as exotoxins.

Summary

The principles of a new technique for the *in-vitro* detection of bacterial toxicogenicity are outlined.

Tests utilizing these principles and adapted for examination of *C. diphtheriae* and staphylococci are described.

Results with a small number of strains show a high correlation with the results of animal virulence tests in the case of *C. diphtheriae* and with clinical pathogenicity in the case of staphylococci.

The possibilities of wider application of the technique for both clinical and experimental purposes are discussed.

I wish to express my thanks to Dr. Theo. Crawford for his help in the preparation of this paper, and to Dr. J. E. McCartney for kindly providing some of the *C. diphtheriae* strains used and for carrying out the virulence tests. I wish also to thank Mr. T. W. Shaw for technical help.

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SPERANSKY'S METHOD OF SPINAL PUMPING IN RHEUMATOID ARTHRITIS

A REVIEW OF FOUR CASES

BY

OSWALD SAVAGE, O.B.E., M.R.C.P.

Assistant Physician, B.R.C.S. Rheumatism Clinic, Peto Place; Chief Assistant, Rheumatism Department, West London Hospital

(From the Rheumatism Department, West London Hospital)

The recent interest shown in Speransky's method of treating rheumatic cases by means of "spinal pumping" make it worth while to report four cases of rheumatoid arthritis which were treated in this way and followed up for a year. Speransky (1935) gave reasons for his belief that the nervous system played an important part in acute and chronic disease. Ponomareff and Tchechkoff (1927) and Jowelew (1930) studied the passage of antibodies through the blood-stream barrier of the spinal cord in rabies and attempted by spinal pumping to break it down.

The operation, which consists in withdrawing and replacing 20 ml. of spinal fluid slowly twenty times, takes about an hour. The spinal fluid in each of our cases was sterile, and laboratory tests showed no abnormality. The only reactions were vomiting in one case and a transient rise of temperature in another. Spinal pumping is not an easy procedure to carry out in cases of active rheumatoid arthritis, for the patients find it difficult and painful to get into a suitable position for lumbar puncture.

Speransky claimed good results with this treatment in malaria and typhus, and also in the rheumatic diseases. He treated 100 cases of "polyarthritis" by spinal pumping, giving intensive salicylate therapy before and after, and found that of 52 patients with their first attack of rheumatic fever 70% appeared to show complete recovery. Of 15 cases of chronic arthritis, 4 were reported recovered, 9 improved, and 2 unchanged.

Later the Gillman brothers (1946) issued an account of their trials of spinal pumping, and interest was reawakened in the subject. They reported good results in 36 cases of subacute rheumatism following rheumatic fever and in 22 cases of chronic arthritis which had failed to respond to gold and physiotherapy. In 12 of these chronic cases there was great improvement, with a return of the sedimentation rate to normal in two weeks; in the remaining 10 the condition was unchanged. After the spinal pumping they noted severe sweating, a rise in skin temperature, and visible dilatation of the peripheral skin capillaries which lasted for 48 hours. Some unpleasant side-effects were encountered, such as severe headache and vomiting, and, in one case with hypertension, death due to multiple cerebral haemorrhages followed the third pumping. After publication of that report it was decided to try spinal pumping in the following cases of rheumatoid arthritis which had failed to respond to more rational methods.

Case 1

A hospital sister aged 54 had had arthritis for a year. It had spread rapidly to her hands, wrists, feet, knees, and elbows in the last six months. She was admitted on June 18, 1946, with clinical rheumatoid arthritis—afebrile. Radiographs revealed generalized decalcification with loss of joint space. A blood examination showed: red cells, 3,850,000; Hb, 70%; white cells, 5,500; differential count normal; W.R. negative; uric acid, 2.6 mg. per 100 ml.; sedimentation rate, 25 mm. in one hour (Westergren), which rose to 40 mm. in the next five weeks. Treatment with "myocrysin," salicylates, 1,000,000 units of penicillin, complete bed-rest, and plasters brought no improvement, and as she was rapidly becoming crippled it was decided to carry out spinal pumping. This was performed on Aug. 1 after a preliminary course of 10 g. of salicylate in 24 hours. The C.S.F. pressure at the onset was 180 mm., and at the end 70 mm. Salicylate, 10 g., was given during the next 24 hours. Five hours after pumping the patient complained of feeling "burning hot, especially in the forearms and feet," though there was no rise in general or skin temperature and no demonstrable capillary dilatation. This lasted for 12 hours. The joints then improved, and in a month the sedimentation rate had dropped to normal and the patient was up, walking, and free from pain. She proceeded to a convalescent home.

In February, 1947, the B.S.R. was 5 mm. In September, 1947, it was 8 mm., and she was doing light work, typing and playing the organ with some difficulty, and having to take three or four "veganin" tablets a week for pain in her wrists and ankles. There was a moderate degree of deformity and crippling, though it was no worse than in August, 1946. She had had no treatment since October, 1946. Radiographs showed no change from August, 1946.

Case 2

A Polish housewife aged 54 had suffered from intermittent arthritis in the knees, wrist, and hands for 20 years. It had been much worse in the last six years, since she had come to England. In spite of physiotherapy and gold injections at the B.R.C.S. Clinic, Peto Place, her condition had got worse. When admitted on Aug. 18, 1947, she was crippled with rheumatoid arthritis and had been unable to walk for two months. The

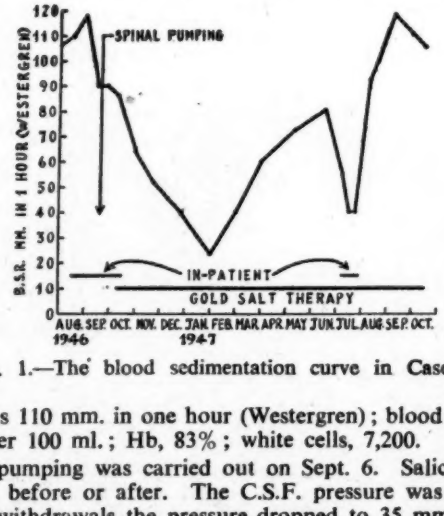

FIG. 1.—The blood sedimentation curve in Case 2.

B.S.R. was 110 mm. in one hour (Westergren); blood uric acid, 2.5 mg. per 100 ml.; Hb, 83%; white cells, 7,200.

Spinal pumping was carried out on Sept. 6. Salicylate was not given before or after. The C.S.F. pressure was 180 mm. After 10 withdrawals the pressure dropped to 35 mm. and the pumping was stopped. A reaction similar to that of Case 1 came on six hours afterwards, with a feeling of heat in fore-arms and legs lasting 12 hours. She had a general fever of 100° F. (37.8° C.), but no demonstrable capillary dilatation. During the next week the joint condition improved, and four weeks later she was discharged. Fig. 1 shows the course of

her B.S.R. She has been treated as an out-patient with myocrisin. The patient was readmitted on July 7, 1947, for active rheumatoid arthritis. The B.S.R. was 55 mm. Further spinal pumping was tentatively suggested, but was refused. She still has an active rheumatoid arthritis, but is able to get about and do some housework.

Case 3

A housewife aged 48 was admitted on Aug. 30, 1946, for clinically active rheumatoid arthritis with effusions in the knee-joints. The history was of rapid onset of arthritis involving the hands, wrists, elbows, and knees two months before. The temperature was 99° F. (37.2° C.), and the B.S.R. 45 mm. Radiographs of the hands revealed general decalcification and reduction in joint spaces. Blood examination showed: uric acid, 2.8 mg per 100 ml.: red cells, 4,350,000; Hb, 64%; white cells, 10,000. This patient refused gold treatment and requested to have spinal pumping, as Case 2, whom she knew, had improved so much.

Spinal pumping was carried out on Sept. 19, 1946, 10 g. of salicylate being given before and after. The C.S.F. pressure at the beginning was 180 mm. and at the end 160 mm. This patient had the same feeling of warmth at the periphery as Case 1, but with no demonstrable signs. Forty-eight hours later the joints were much improved, and a week later she had full movement and no pain, but the B.S.R. had risen to 85 mm. Twenty-five days later she was discharged, the B.S.R. being

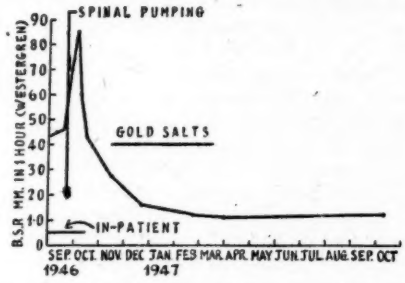

FIG. 2.—The blood sedimentation curve in Case 3.

45 mm. Fig. 2 shows her B.S.R. curve. She attended as an out-patient and had myocrisin till March, 1947, when the B.S.R. was 11 mm. On Oct. 10, 1947, she was doing full housework and had no pain or limitation of movement; the B.S.R. was 12 mm.

Case 4

An engineer aged 40 had for eight months been feeling ill and losing weight, with pain and swelling which started in the left great-toe joint and spread rapidly to the feet, right hip, knees, and right wrist. He had been treated elsewhere with injections of a local analgesic and manipulation of the right hip, but had steadily got worse. On March 21, 1946, he was pale and emaciated, with commencing ulnar deviation of the hands, limited movements of the hands and feet, and much muscle spasm. He had synovitis of the left knee and his ankles were swollen. The B.S.R. was 70/100 in one hour (Westergren); Hb, 73%; white cells, 11,600; blood uric acid, 2.6 mg. per 100 ml.

He was admitted to hospital, and for 10 weeks was treated with rest, plasters, gold, and blood transfusion. There was considerable improvement, but the rheumatoid arthritis was still active and the B.S.R. was 65 mm. As he was very anxious to get back to work he was offered spinal pumping in the hope that it would hasten the improvement. This was carried out on Oct. 1, 1946, after 10 g. of sodium salicylate had been given. Pressure at the beginning was 140 mm. and at the end 210 mm.

The patient was a trained scientist, and he kindly noted his reactions for us:—At operation: "No discomfort and no backache when it was over." First day: "Woke with violent headache and nausea and felt hot all over. Throughout the day experienced quite involuntary movements of the joints—i.e., sudden jerk of knee-joints or ankles or shoulders." Second day: "Still hot and having involuntary joint movements." Third day: "All reaction over." On discharge from hospital two weeks later: "On the whole no marked change." Some joints were less painful, others more so. There was no rise in temperature after the pumping and the B.S.R. was unchanged.

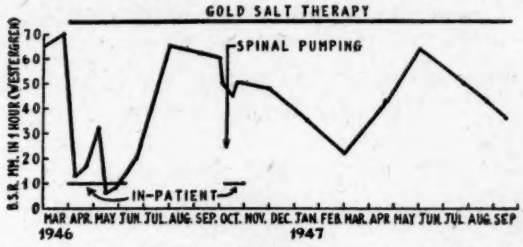
GOLD SALT THERAPY
SPINAL PUMPING
IN-PATIENT
B.S.R. MM. IN 1 HOUR (WESTERGREN)
MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC. JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP.
1946
1947

FIG. 3.—The blood sedimentation curve in Case 4.

The patient continued to have gold as an out-patient and steadily improved. He has gained 1 st. (6.35 kg.), is back at work, and is fit enough to swim, though he still has pain in one shoulder, elbow, and wrist. Fig. 3 shows his B.S.R. curve.

Comment

It may be of some interest to include the views of the patients themselves as to the efficacy of this treatment.

Case 1 slowly became quiescent after the pumping and has remained so. We were quite impressed with her improvement at the time, though it was not so dramatic as other writers had recorded, and the disease has remained quiescent. A year later the patient "does not believe the pumping had anything to do with it."

Case 2 still has very active rheumatoid arthritis. When readmitted to hospital a year later a further pumping was tentatively suggested, but she refused.

Case 3 requested this treatment and is convinced that it cured her. Certainly the disease is still inactive a year later, and the small amount of myocrysin (0.14 g.) which she had afterwards is not alone likely to have had this effect.

Case 4, whom we consider the most accurate observer, recorded "no marked change."

Discussion

No conclusions regarding the value of this treatment can be drawn from such a small number of cases. We saw no sign of dramatic improvement such as a return of the B.S.R. to normal in two weeks as recorded by the Gillmans in their 12 cases of chronic arthritis. All our patients described the same type of reaction as that noted by the Gillmans—that is, a subjective feeling of heat coming on a few hours after the operation and lasting up to 48 hours. In three it was most pronounced at the periphery. We were, however, unable to observe any objective sign of this, such as a rise in skin temperature or peripheral or orbital dilatation of vessels. Rheumatoid arthritis is an extremely difficult disease in which to assess the value of any particular treatment, because its natural history shows periods of remission and relapse.

All the cases were under the care of Dr. W. S. C. Copeman, and it is a pleasure to record my indebtedness to him for encouragement in carrying out the treatment and in writing this report.

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According to the October number of the British Red Cross Society's *News Survey*, an American in Washington before the war who acted as a blood donor for the Red Cross was subsequently wounded at Tarawa and was given a transfusion of plasma. On glancing up from his bed to look at the bottle he was astonished to see that its label showed the plasma was his own.

DIVERTICULITIS PRESENTING AS EMPHYSEMATOUS CELLULITIS OF LEG

CLINICAL REPORT ON TWO CASES

BY

R. L. G. DAWSON, F.R.C.S.
Assistant Surgical Registrar

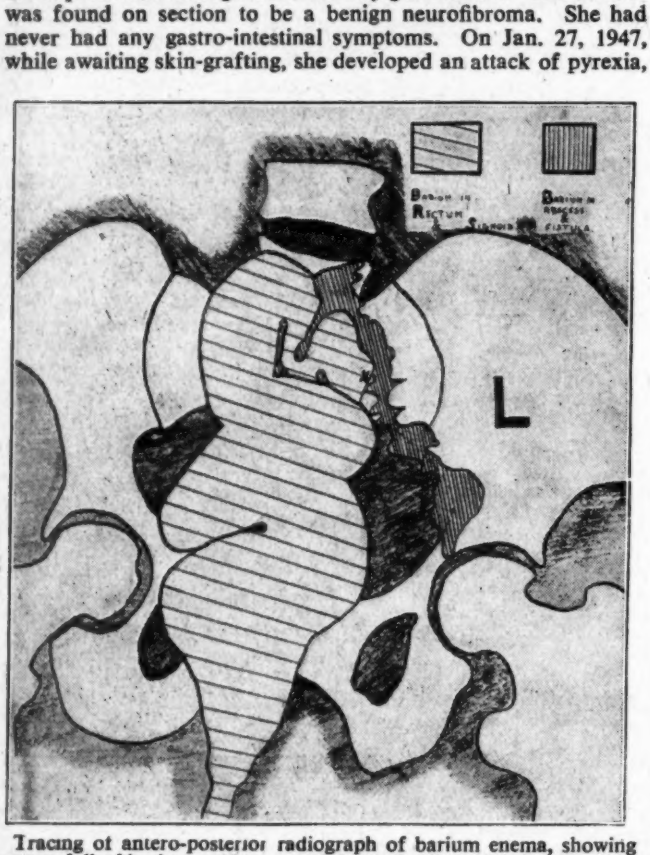
AND

R. H. HARDY, B.M., B.Ch.
House-Surgeon
University College Hospital, London

A case of diverticulitis of the large intestine which presented as an emphysematous cellulitis spreading down the leg from the left groin is considered of sufficient general interest to merit recording. This occurred in a patient under observation for another condition. A similar case which occurred in the hospital in 1908 has been recalled by a senior member of the staff and is also recorded.

Case History

Mrs. C., aged 73, was admitted on Nov. 30, 1946, for excision of a rapidly growing tumour of the skin of the lumbar region. This was removed by wide excision down to the lumbar fascia, the exposed area being left to heal by granulation. The tumour was found on section to be a benign neurofibroma. She had never had any gastro-intestinal symptoms. On Jan. 27, 1947, while awaiting skin-grafting, she developed an attack of pyrexia,



Tracing of antero-posterior radiograph of barium enema, showing rectum full of barium. Abscess and fistula leading from it. X marks the site of obstruction.

the temperature reaching 102° F. (38.9° C.) on Jan. 31. The pyrexia was associated with backache, diarrhoea, vomiting, and some difficulty of micturition. By Feb. 4 the temperature had subsided, and thereafter remained subnormal. On Feb. 6 the patient developed a painful, tender, deep-red swelling in the left groin. This was considered to be an inguinal abscess, and as such was being treated expectantly with local heat until it should fluctuate. This did not, however, happen. The swelling developed into a rapidly spreading cellulitis which soon involved the left labium majus, spread laterally almost to the anterior superior iliac spine, limited above by the inguinal ligament, and for a few inches down the anterior aspect of the thigh. The swollen area was crepitant to palpation and covered with bullae containing blood-stained fluid.

On Feb. 8 the swelling was incised under general anaesthesia, with liberation of large quantities of very foul-smelling, frothing sanious pus from the deeper subcutaneous layers. In the course of wide excision of the affected area a track was found leading over the brim of the pelvis, just lateral to the mid-inguinal point, into the pelvic retroperitoneal tissues. A provisional diagnosis of gas-gangrene was made, and, although no clostridia were seen in a direct smear, appropriate specific treatment was started at once. Culture ultimately showed the infection to be due to *Bact. coli* and *Str. faecalis*. No further pyrexia occurred, and the local condition responded rapidly to intensive local and general treatment.

On Feb. 13 the previously defined track became the site of a faecal fistula which persisted intermittently until death. Discharge of pus from the area was controlled with sulphasuxidine and later with phthalyl-sulphathiazole supplemented with riboflavin and nicotinic acid. By March 1 the patient's general condition had improved sufficiently to permit examination by barium enema, on which the radiologist reported as follows: "Barium passed normally through the rectum into the first part of the sigmoid. There was an irregular filling defect past which the barium would not flow. It outlined an irregular fistulous track running down towards the left groin. The film taken after evacuation is suggestive of the presence of diverticula of the colon." The films are unfortunately not good enough for publication, but a tracing from one antero-posterior view is shown in the accompanying illustration. On March 14 a sigmoidoscope was passed to 20 cm. and showed no abnormality.

Owing to the persistence of the fistula and to recurrent attacks of subacute intestinal obstruction a colostomy was considered necessary, and laparotomy was performed on April 11. A large mass was found in the region of the sigmoid attached to the side wall of the pelvis, with several loops of small intestine adherent to it. The gut proximal to these adhesions was dilated and hypertrophied. In attempting to free them from the mass a small abscess was inadvertently opened. Transverse colostomy was performed through a transrectal incision, the abscess being drained through the midline laparotomy wound. The patient died two days later from general peritonitis.

The post-mortem findings were as follows: "The pelvis was almost entirely occupied by a large mass involving the sigmoid colon. Connected with the lumen of the gut were numerous diverticula, which were infected and haemorrhagic. The gut wall in this region was extremely thick, with mucoid or gelatinous deposit producing great deformity of the lumen. About 6 in. (15 cm.) of gut was thus involved, and there was no evidence of carcinoma."

The 1908 Case

In spite of the lapse of time since its occurrence, this case is recorded because of the rarity of the condition and its close similarity to the recent case. The 1908 case was referred to by Barrington and Gardham (1932), but was not fully reported.

Mr. S., a hotel-keeper aged 52, was admitted under Mr. Barker in a moribund condition on June 3, 1908. He came in at 1 a.m., with a diagnosis of intestinal obstruction and emphysematous gangrene of the leg. The patient's doctor supplied a history of moderately severe pain on the left side of the abdomen for two days and reported that "a lump could be felt here, but that nothing could be felt by rectum." The pain was first in the hypochondrium but later in the iliac region. The patient had been unwell for five days. He had had diarrhoea and vomiting but no constipation; he had also suffered greatly from eructations for some time.

On admission he was pale and rather cyanosed. Respiration was 42 a minute. The pulse was rapid and could hardly be felt at the wrist, and the heart sounds were scarcely audible. The abdomen was distended, but the patient said that he was always stout; it was not rigid or tender, and was resonant all over except for some slight impairment in the left flank. The left leg was blotchy and cyanosed in colour, cooler than the right, and the sense of touch with the finger was absent all over it. The pulse in the left dorsalis pedis and femoral arteries could

not be felt, but on the right side they were distinctly palpable. The patient complained of great pain in the left leg, which was partly relieved by elevating the leg and applying leeches.

In the left thigh there was a superficial crepitant sensation resembling surgical emphysema. This was limited sharply above by Poupart's ligament, but, below, the margin was not definite, extending down to the knee in some places. The patient was very restless; the dyspnoea gradually increased, and he died at 4.15 a.m.

The post-mortem report mentions the dark-red colour of the lesion, the large bullae projecting from the surface, and the involvement of the left side of the scrotum. Culture from the leg post-mortem gave several organisms, chiefly *Bact. coli*. *Bact. aerogenes capsulatus* was not present. "Thrombosis of the veins of the leg had occurred; the muscles of the thigh—iliacus and psoas—were involved in the gaseous necrosis. The intercostal muscles were also involved. The whole of the retroperitoneal tissues on the left side of the abdomen were full of a liquid brownish pus. There was a thick adhesion between the descending colon and the retroperitoneal tissues, and in this there was a recent perforation. In the large intestine there were numerous small pockets of mucous membrane bulging into the peritoneal cavity. There was no obstruction of the large intestine."

A diagnosis of "sacculation of the large gut, stercoral ulceration, perforation, and emphysematous gangrene of the leg" was made.

Summary

Two cases of diverticulitis presenting as emphysematous cellulitis of the leg are described, one in a woman and one in a man. Points of similarity between the cases are set out. In the first case the patient developed the clinical manifestation of the underlying disease while in hospital for another reason; she ultimately died of peritonitis following a therapeutic colostomy, in spite of prolonged and intensive general and local treatment. The second patient was admitted in a moribund condition and died of the immediate and very far advanced sepsis.

Our grateful thanks are due to Mr. A. J. Gardham for encouragement and permission to publish the first case, to Mr. F. J. F. Barrington for references to the second, and to all who have in any way assisted in the preparation of this account.

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RECURRENT RENAL LITHIASIS

BY

A. DICKSON WRIGHT, M.S., F.R.C.S.

Surgeon to Out-patients, St. Mary's Hospital

The condition of recurrent renal calculi associated with infection has been a urological bugbear for a very long time, and the apparently satisfactory outcome of the following extreme case seems to render it worthy of record.

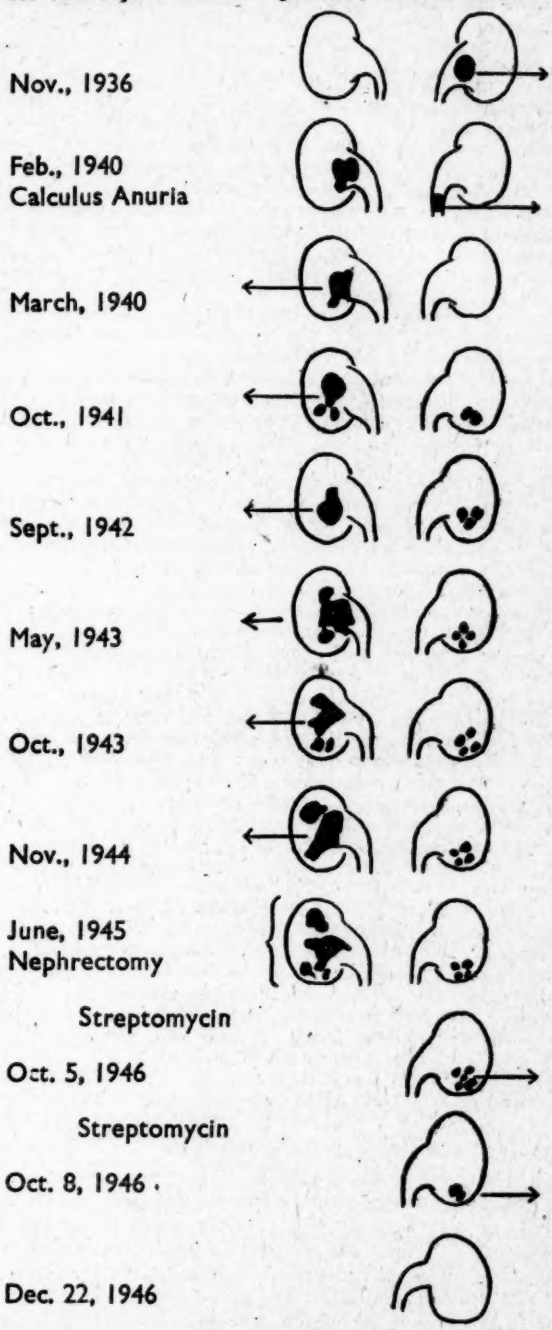
Case History

The first operation was done by the late Girling Ball in 1936, when the patient was aged 24. An oval stone was removed from the pelvis of the left kidney, and infection with *Bacterium coli* was present at this time.

The subsequent ten operations were performed by me during the next ten years, and are summarized diagrammatically. Never during this time was she free from gross pyuria, and *Streptococcus faecalis, Bacillus proteus,* staphylococci, and *Pseudomonas pyocyanea* found company with the *Bact. coli* of the first occasion. The patient suffered much misery from recurrent attacks of renal colic associated with fever together with renal aching nearly all of the time. Naturally every method was used to try to overcome the infection—ketogenic diet, mandelic acid, sulphonamides, penicillin, N.A.B., etc. The stones were always a mixture of phosphates and seemed to be unaffected by reducing calcium intake and drinking large amounts of distilled water. Calcium metabolism was carefully checked and found normal.

After some of the later operations small tubes were left in the infected calices and irrigated continuously for two weeks with various solutions, G1, G2, associated with sulphonamide solutions and penicillin. On two occasions a ureteric catheter was left in the ureter and the irrigating was done through this with a nephrostomy tube for outflow. All these methods were in vain, the infection in every case reappearing before the patient had left the hospital, and the stones rapidly forming soon after.

With the last two operations streptomycin was used systemically for two days before the operation, and the urine for the first time for ten years became sterile. Four stones were removed, and radiographs taken during the operation with a small oral film inserted into the depths of the wound visualized no stones. A radiograph on the second post-operative day showed two small calculi still present, so the wound was reopened and these were removed by the device of drawing half a small dental wool roll on a silk thread from the pelvis through the diseased inferior calices. Streptomycin was used for seven days in all—1,000,000 units daily in three-hourly doses—and the diseased calices were also irrigated with streptomycin solution—1,000 units per ml.—for seven days after the operation.



Six months later the urine is clear of infection and the kidney of stone, and the patient is free from symptoms.

Medical Memoranda

Central Placenta Praevia with Premature Rupture of Membranes

The following case is of sufficient practical importance to merit publication.

CASE HISTORY

Mrs. A., aged 45 and separated from her husband, had had three normal pregnancies before the age of 30; thereafter she suffered from severe menorrhagia, which was relieved by curettage and removal of a fibroid polyp; hysterectomy had been advised on account of fibroids, but conception temporarily removed her symptoms. Her fourth pregnancy was illegitimate and unwanted, and she was due for confinement on May 19, 1947. Irregular bleeding began in the early months, and there was a severe haemorrhage at 28 weeks; after three weeks in bed there were three more attacks in a fortnight, and she was admitted on April 9 in her 34th week, following her fifth haemorrhage.

On examination she was seen to be somewhat anaemic, the haemoglobin amounting to 62%. The uterus was not contracting and there was no vaginal loss. A foetus equivalent in size to 34 weeks' pregnancy was presenting by vertex (not engaged) and with regular heart sounds. There was no oedema, albuminuria, or rise of blood pressure. Speculum examination of the cervix disclosed no local cause for bleeding.

A provisional diagnosis of placenta praevia was made; a conservative regime was adopted in view of prematurity and the patient confined to bed. Two days later, however, the membranes ruptured, with copious loss of clear liquor, and 48 hours later contractions started. These increased steadily for 20 hours, during which period there was no bleeding, the presenting part remained high, and no pelvic examination was made. Brisk haemorrhage eventually ensued, and preparations were made for vaginal examination under an anaesthetic; but caesarean section was not seriously contemplated, since the foetus was six weeks premature, the membranes three days ruptured, and the placenta presumed to be well away from the os.

Delivery.—Under thiopentone anaesthesia examination showed a soft cervix rather less than half dilated and completely covered by thick placental tissue; the presenting part was high, but was easily palpated through the anterior fornix. Two fingers were passed up between placenta and anterior lip of cervix to re-rupture the membranes and fasten two pairs of Willett forceps on to the foetal scalp; the placenta was pushed back, the head drawn down, and 1 lb. (0.45 kg.) traction weight secured to the forceps handles. Surprisingly little haemorrhage attended these manœuvres, but there was sufficient loss to warrant blood transfusion. Four hours later a stillborn child weighing 4 lb. 13 oz. (2.18 kg.) was delivered. The placenta failed to separate, and after 1½ hours of slight bleeding the patient was again anaesthetized. An attempt at expression was unavailing, and manual removal was undertaken. The placenta was found on the posterior wall, the upper part separating easily; but inferiorly it was densely adherent to the lower segment and cervix, from which it could be clawed off only with great difficulty and much loss of blood. The patient's condition became critical; the lower uterine segment was packed with gauze, and a total of 5 pints (2.84 litres) of blood was given before satisfactory recovery ensued.

DISCUSSION

The pathology of the condition was undoubtedly an imperfect placental development in the lower part of the uterus (partial accreta), with morbid adhesion more or less all round the internal os. Thus the membranes must have bulged round the anterior placental border to rupture at the least-supported spot, while subsequent dilatation of the cervix was considerably hindered and bleeding relatively slight. The practical importance of the rupture of membranes was to give an unwarranted bias against caesarean section and to trust to vaginal delivery. This policy was apparently endorsed by the early freedom from bleeding but heartily condemned by the difficulty and danger of the third stage. The morals that may be drawn are two: every antepartum haemorrhage is a potential caesarean section until the finger has passed through the cervix; and a patient with antepartum haemorrhage may die of postpartum haemorrhage if delivered vaginally.

Acknowledgments are due to Mr. Kenneth MacMillan for his permission to publish.

W. G. MILLS, F.R.C.S., M.R.C.O.G.,
Resident Surgical Officer.
Birmingham Maternity Hospital.

Occupational Dermatitis Occurring in Transplanted Skin

The following case of occupational dermatitis occurring in a skin graft to a finger may be of interest to casualty surgeons and to dermatologists—to the former as a complication of their technique, and to the latter as a factor in the aetiology of occupational dermatitis.

CASE REPORT

The patient, a man aged 38, had been employed for some 20 years as a wet grinder of brake drums and other car components. He sustained an injury to the soft tissues of the dorsum of the terminal phalanx of the right ring-finger. Superficially there was loss of skin, nail, and part of the nail bed, and, more deeply, the tendon of extensor digitorum longus was divided and the bone lacerated.

At operation in hospital the damaged tissues were repaired and the lost skin made good by the application of a cross-arm flap from the upper extensor aspect of the left forearm; it was noted that the medial and lateral neurovascular structures were intact. Surgical recovery was uneventful, and six weeks after the date of injury the patient returned to his original job without having been subjected experimentally to the exact working conditions of the job, where his hands were continuously bathed in a dilute solution (varying from 5 to 10%) of washing soda.

Twenty-four hours after starting work a vesicular eruption appeared over the area of the grafted skin, and after attempting to carry on work on the next shift he reported sick. When examined the condition of the graft was noted to be as follows. A whole-skin graft covered the dorsal aspect of the terminal phalanx of the right ring-finger. The graft had taken well, and a definite small sulcus delimited its extent. The whole of the skin-graft area showed a mild erythema, and a few scattered vesicles were seen. The surrounding skin was normal. In addition there were areas of desquamation where vesicles had broken down, showing increased erythema of the underlying tissue layers. The transplanted skin contained hair follicles, and the openings of these were prominent and distended. The whole appearance was compatible with a localized occupational dermatitis due to contact with a mild irritant fluid.

Daily treatment with a simple zinc-and-tar lotion and a gauze dressing was immediately instituted, and arrangements were made for the patient to be placed on dry work. The condition cleared up after one week, and at the time of writing (some four weeks after the man's return to work) he is on a job under dry conditions before being given a further contact trial.

DISCUSSION

This man had never previously shown any reaction to soda solution, with which he had been continuously in contact at work for 20 years. It is presumed, therefore, that the irritating factor was the contact between sensitive skin—i.e., from the upper part of the forearm—and the soda solution, which has both a mild irritant and a macerating action. The skin graft was only six weeks old, and it is probably correct to assume that the blood supply was still inadequate.

The chance of an occupational dermatitis occurring in skin grafts should be borne in mind by surgeons and by medical practitioners when certifying a man as fit to return to his pre-accident job. Industrial medical officers and those in charge of skin clinics should recognize its possibility, and arrange for slow initiation, under supervision, of skin-graft cases in their contact with industrial irritants.

The reaction in this case was to dilute alkaline solution, one of the less common skin irritants met with in industry. The distended condition of the hair follicles following contact indicates that in carrying out skin grafts on the hands of machinists casualty surgeons should consider the possibility of taking skin from a less hairy area than the extensor surface of the forearm, thus reducing the risk of infiltration of the follicles with industrial solutions.

Prosser White (*The Dermatergoses*, 4th ed., 1934, p. 28) states that, "apart from the activity of the irritant and the sensitivity of the nervous system, liability to injury depends upon whether the skin is normal in structure and healthy in function." In the case of transplanted skin it is likely that at six weeks vascularization is still incomplete, and therefore its powers of recuperation from continued low-grade chemical trauma are less than those of normal skin.

C. H. HOSKYN, M.B., B.Chir.

Reviews

ZEST IN OLD AGE

Old Age. Its Compensations and Rewards. By A. L. Vischer. Foreword by Lord Amulree, M.D., F.R.C.P. (Pp. 200; illustrated. 12s. 6d.) London: George Allen and Unwin. 1947.

In the ages of mediaeval Christian faith a "good death" was regarded as the crown of life (not necessarily always of a good life). Nowadays, surely, a healthy old age, with true "ripeness" and preservation of the intellect, has a just claim to be called the crown of an active and well-spent life. Among the many (including some brilliant) medical and philosophical books and essays on old age there is not one, so far as I know, really similar to Dr. Vischer's. Dr. Vischer, who has had exceptional opportunity at Basle for a long and obviously sympathetic study of old persons, gives us the result of his experience and study regarding their physical and psychical peculiarities and infirmities, their mental life, and how best to make them comfortable and happy in the feeling that they are still really playing a useful part in life.

Paediatrics, in spite of considerable opposition, gained recognition as a medical specialty, and now, with the greatly increased proportion of old persons among the public, geriatrics can no longer be denied a place.

When about 20 years of age I once had the privilege of sitting at dinner next to the warm-hearted Sir James Paget. He questioned me on how I spent my holidays, and then he gave me to understand that I was one of those who preferred "change of work" to mere rest or amusing games—I suppose he included the strenuous pursuit of hobbies under "change of work." Change of work doubtless gives a temporary holiday to groups of brain cells—according to the ideas admirably put forward by the late Sir Farquhar Buzzard (1928), quoted with approval by Dr. Vischer (p. 192), and these ideas should be remembered in the management of some of the troubles of late middle age and commencing senescence. Old persons should not be discouraged from making harmless experiments in regard to way of life (including diet), if they find that for a time their vigour and zest in life are thereby increased.

One need scarcely mention that when long periods of continuous physical and mental work become impossible the experience of old persons is often still so useful that they should be recognized as advising or consulting authorities (not "sleeping partners"). For instance, in our medical profession they might often be made active "consultant diagnosticians" to hospitals and institutions where they were formerly on the regular visiting staff.

The clear wording and admirable translation of Dr. Vischer's book should be specially noted, but not the least feature is its wealth of references to sparkling and appropriate epigrammatic sayings and discussions by previous writers of all kinds bearing on a subject which, perhaps next to love and death, offers itself most readily to literary artists. One piece of advice from early mediaeval Christianity (not included in the book) I once stumbled on—namely, the last two lines of a letter by Paulinus, Bishop of Nola, early in the fifth century (eleventh volume of Migne's *Patrologia, series latina,* column 184): "Vive, precor [another version gives "Vive diu"], sed vive Deo : nam vivere mundo Mortis opus ; vera est vivere vita Deo." In the widest possible humanistic spirit I think one should interpret these lines : "Live long the fullest life you can, but live as rightly as you are able to ; for to do wrong is death's work ; to act rightly is the true life to God."

F. PARKES WEBER.

THE GROWING CHILD

The Child from Five to Ten. By Arnold Gesell, M.D., and Frances L. Ilg, M.D. In collaboration with Louise Bates Ames, Ph.D., and Glenna E. Bullis. (Pp. 475. 18s.) London: Hamish Hamilton. 1947.

In this volume, now in its second edition, the authors discuss the same children as in previous volumes—*The First Five Years of Life,* 1940, and *Infant and Child in the Culture of Today,* 1943. The study is chiefly longitudinal through seventeen age levels and ten major fields of behaviour, but cross-sections are summarized for the sake of clarity. The study is clinical rather than statistical and experimental, and the behaviour was observed, so far as possible, in the natural setting of school and home. It must be remembered that a child is growing all the time and not at an even rate in all respects, so that a certain cross-section cannot be regarded as normal for any particular child. Nevertheless, a growth gradient and tendency can be discerned as a general pattern of normality.

The age of 5 to 10 lies between the dramatic years of infancy and adolescence and has so far been rather neglected. The present study shows that it has distinctive and important characteristics peculiar to it. Besides marked physical growth there is a surprising mental advancement which, while showing a general progress towards maturity, may not proceed evenly and may even retrogress from time to time. When large numbers are studied the curve of progress smoothes out, so that the stage reached by the individual in respect of particular activities and skills can be estimated at any age. Thus we may learn how a particular child needs help or encouragement. To bring up a child successfully the parent and teacher need considerateness, a sense of humour or proportion, and a "philosophy of growth"—that is to say, an idea of how the average child develops and what should be looked for at any particular stage. The danger of divided loyalties for the child must be avoided by maintaining a close relationship between parents and teachers.

In the second part of the book the authors describe "behaviour profiles" reached at each successive year from 5 to 10, especially in relation to ten maturity traits and gradients of growth—namely, motor characteristics, personal hygiene, emotional expression, fears and dreams, self and sex, interpersonal relations, play and pastime, school life, ethical sense, philosophic outlook. In the third part they trace the development of these maturity traits through the first ten years of life, though since individual children develop at different rates parents should not be alarmed if theirs has not reached a particular stage at a certain age. From this part of the book, however, it is possible to discover what the average child is likely to be doing at any given stage of development. For example, we can learn how and when a child responds to reason, how his relations with other children change, his interests in sex develop, his conception of God emerges, and so on.

This book will be of great value to parents and teachers, doctors and nurses, and all those concerned with children, for it is interesting to read and useful for reference. Any work done in the Yale clinic of child development, of which Dr. Gesell is the director and Dr. Ilg a prominent member of the staff, is reliable and thorough. A balanced study of childhood is especially important in these days, for "the intrinsic charm and goodness of childhood still constitute the best guarantee of the further perfectibility of mankind."

R. G. GORDON.

POLIOMYELITIS

On the Problem of Poliomyelitis. An Epidemiological Statistical Study. By Bertel S:Son Bertenius. (Pp. 212. No price given.) Lund: Carl Bloms Boktryckeri A.-B. Acta Pathologica et Microbiologica Scandinavica Supplementum LXVIII. 1947.

The author of this publication presents a valuable collection of official statistics and other records of poliomyelitis in many countries, his analysis covering a number of problems. In this review we can only summarize some of his arguments. Large epidemics and an increase in the prevalence of poliomyelitis have been noted only in this century and at first particularly in Sweden, Norway, and the U.S.A. There was a stationary period during the first world war, but in the 1920's the increase was resumed and the population of Iceland, New Zealand, and Australia were affected. Countries with a high incidence of poliomyelitis have low infantile and general mortality rates and a high standard of living. The seasonal incidence has a constant maximum in autumn. Analysis of Swedish and American figures shows that this may be related to climatic conditions, but the reason for it has not yet been elucidated.

The shift in age incidence to older people is contrary to the trend of other infectious diseases in Sweden, which conform to de Rudder's "Law of Age Precession." The shift has occurred to a different extent in different countries and during a high

prevalence in some and a low prevalence in others. Although attack rates in rural districts are often higher than in towns, the reverse has been true in some countries, and Swedish figures show several indications that the attack rate is not inversely related to population density. In Sweden also the case fatality rate is higher in towns than in country districts and highest among people aged 20 to 60 years. These findings lead the author to conclude that immunization by subclinical infections plays no part in determining the incidence of poliomyelitis. He refers to experiments by other workers showing that deficiencies of diet increase the resistance of monkeys and mice to poliomyelitis virus and suggests as a working hypothesis that a predisposition of the individual human being, probably produced by social factors, is a necessary antecedent to acquiring poliomyelitis.

A. M. MCFARLAN.

DIGESTIVE TRACT

An Introduction to Gastro-Enterology. A Clinical Study of the Structure and Functions of the Human Alimentary Tube. By James Dunlop Lickley, M.D. (Pp. 143; 21 illustrations. 8s. 6d.) Bristol: John Wright and Sons, Ltd. 1947.

The author's aim is to present a simplified account of the structure and functions of the gastro-intestinal tract which senior students or recently qualified practitioners may use as an introduction to the study of digestive disorders. He first carefully describes the salient features of the anatomy of the intestines. He then gives a chapter on physiology, though, as he says, this is simplified by the selection of certain details for description and the omission of many others. The author then proceeds to describe and elaborate his main thesis, which is that the signs and symptoms of disease of the digestive tract are mainly produced by the actions of the defence mechanisms by which the intestines deal with abnormal situations. Such a conception takes us from the realm of facts to that of hypothesis. For instance, he considers that the increased resting juice found in pyloric stenosis is necessary "to fill the dilated stomach and so enable the impaired gastric muscles to adjust their grip on the stomach content."

It is, however, by his account of the practical clinical applications of his theory that the author is likely to lead the senior student furthest astray. He classifies diseases of the stomach into acute or chronic, generalized or circumscribed mucositis, myositis, or serositis. Such a division is surely an oversimplification, and he is wise not to keep too closely to this nomenclature. Nevertheless, he succeeds in describing and explaining the pathogenesis of the symptoms of peptic ulcer (chronic circumscribed mucositis) in a very few pages.

The author attempts too much and achieves too little. As a manual of gastro-enterology his book contains too little fact and too much theory; as an exposition of the author's particular thesis it suffers from being too simplified and from an absence of verifiable evidence to support an original conception.

CHRISTOPHER HARDWICK.

FAR AND WIDE

Nothing New Under the Sun. By J. P. Lockhart-Mummery, M.A., F.R.C.S. Illustrations by William Wood. (Pp. 178. 12s. 6d.) London: Andrew Melrose, Ltd. 1947.

Mr. Lockhart-Mummery has drawn on his experience, his travels, and his reading, scientific and otherwise, to produce this attractive little book of essays, which are linked by having in common a scientific or historical background. A random selection from the titles—"Fighting Fish of Siam," "How was Man Evolved?", "Why do Dogs like Bones?", "Hormones," "Quacks and Charlatans," "D.D.T.," "What was the Biggest Explosion?"—gives some indication of the range he covers. The author has an attractive eager style that takes the reader with him in his enthusiasms. He is at his best when considering historical subjects like "The Good Old Days," least satisfactory as an exponent of evolution. The proof reader has missed a few mistakes, such as automatically for anatomically on p. 39, and Chiseldon for Cheselden on p. 124. The book is eminently readable. It is attractively produced, and the woodcuts by William Wood are a delight to look at.

HENEAGE OGILVIE.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Méthodes Statistiques en Médecine et en Biologie. By E. Morice *et al.* (Pp. 177. 480 francs.) Paris: Masson and Cie 1947
Textbook of statistics for medical workers

Die Prophylaxe des Verbrechens. By Heinrich Meng *et al* (Pp. 568 34 Swiss francs.) Basle: Benno Schwabe and Co. 1948
A study of the aetiology and prevention of crime

Psychotherapy in Child Guidance. By Gordon Hamilton. (Pp. 340. 22s.) London: Geoffrey Cumberlege. 1947
A study of the social worker's role in psychotherapy

Let's Talk About Your Baby. By H. Kent Tenney, Jr., M.D., F.A.A.P. 3rd ed. (Pp. 115. 8s. 6d.) London: Geoffrey Cumberlege. 1947.
Medical advice in plain language for mothers.

Traite de Médecine. Vol. I. Edited by Prof. A. Lemierre *et al* (Pp. 1,096. 2,200 francs.) Paris: Masson and Cie. 1948.
Textbook of medicine: this volume is first part on infectious diseases

Traité de Médecine. Vol. V. Edited by Prof. A. Lemierre *et al.* (Pp. 1,163. No price.) Paris: Masson and Cie. 1948
Textbook of medicine: respiratory diseases.

Guide to Marriage. By Leslie J. Tizard. (Pp. 173. 7s. 6d.) London: George Allen and Unwin. 1948
A manual for the layman.

Doctors, Drugs and Steel. By Edward Podolsky, M.D. (Pp. 382 16s.) London: Medical Publications Limited. 1947.
Some recent medical discoveries described for the layman

Lehrbuch der Inneren Sekretion. By F. Verzár. (Pp. 609. 52 Swiss francs.) Liestal: Verlag Ars Medici Lüdin AG 1948
A textbook of endocrinology.

Women and Men. By Amram Scheinfeld. (Pp. 394 15s.) London: Chatto and Windus. 1947.
An account of sex differences for the layman.

Fatigue and Impairment in Man. By S. Howard Bartley, Ph.D., and Eloise Chute, M.A. (Pp. 429. $5.50.) New York and London: McGraw-Hill Book Company, Inc. 1947.
An investigation into the bodily and mental aspects of fatigue.

Practical Psychiatry and Mental Hygiene. By Samuel W. Hartwell, M.D. (Pp. 438. $3.75.) New York and London: McGraw-Hill Book Company, Inc. 1947.
A textbook for the student of psychiatry.

Local Government. By Sir Arthur MacNalty, K.C.B. (Pp. 218. 4s. 6d.) London: Methuen. 1948.
A general account of local government in Britain.

Introduction to Carbohydrate Biochemistry. By D. J. Bell, B.Sc., M.A., Ph.D., F.R.I.C. 2nd ed. (Pp. 107. 6s.) London: University Tutorial Press. 1948.
Intended primarily for students of biochemistry.

Endocrine Therapy in General Practice. By E. L. Sevringhaus, M.D., F.A.C.P. 6th ed. (Pp. 264. No price.) London: H. K. Lewis. 1948.
A practical introduction to endocrinology.

A Century of Medical Service. By B. Darwin. (Pp. 47. No price.) Swindon: Great Western Railway Medical Fund Society. 1947.
A history of the G.W.R. Medical Fund Society.

The Oculorotary Muscles. By R. G. Scobee, B.A., M.D. (Pp. 359. 40s.) London: Henry Kimpton. 1947.
An approach to the diagnosis of dysfunction of the external muscles of the eye.

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THE INDEPENDENCE OF MEDICINE

A Special Representative Meeting will be held next week so that the Representative Body may consider the results of the plebiscite and the consequent policy to be adopted. The Council of the B.M.A. at its meeting on Feb. 18 passed a Resolution to be put before the Special Representative Meeting. It is as follows:

> That the Representative Body, reaffirming the whole-hearted desire of the medical profession for a comprehensive health service available to everyone, urges that in the public interest such changes should be made in the Acts of 1946 and 1947 as are necessary to maintain the integrity of medicine and to prevent doctors being turned into State servants, with harmful consequences to patient and doctor alike. The Representative Body therefore expresses the hope that the Government will make it possible for the profession to co-operate by making such changes, and states its view that it is not in the best interests of the public or of medicine for members of the profession to enter the Service until such changes are made.

At its last meeting held before the issue of the plebiscite forms the Representative Body discussed the problems before it in a thoughtful, quiet, but determined manner, thereby showing its sense of responsibility in relation to the present conflict between the medical profession and the Ministry of Health. The in many ways unexpected results of the plebiscite will have heightened their sense of responsibility and at the same time confirmed the confidence of the representatives in the policy they have followed. It was said in the early days of the war, we believe by Mr. Winston Churchill, that it was undesirable to introduce controversial legislation during the period of war stress. But the reformer always seizes upon the atmosphere created by a war to promote those projects which he fervently believes will promote the well-being of the country. It was in 1942 that Sir William Beveridge (as he then was) introduced his Social Security Report. We are not concerned here to argue whether security is an ideal likely to bring out the best from a people who have built up a great and beneficent Empire by boldly accepting the challenge which insecurity offers. It may, however, be noted that the Beveridge Report was published at a moment when Britain was faced with the possibility of overwhelming national disaster. Freedom from fear and from want were things that even the most stout-hearted deeply desired. Assumption "B" of the Beveridge Report carried with it the promise of freedom from disease. The psychological moment was indeed ripe for the reception of Sir William Beveridge's great document, and what Mr. Butler has described as "the new social mosaic" was put together by a Coalition Government. If we are to believe what Socialist spokesmen have said, the pressure for the nationalization of Medicine came from the Labour side of the Coalition, and successive Ministers of Health—Liberal, National, Conservative, and finally Labour—have been busy trying to fit the medical profession into this new mosaic.

The medical profession has for centuries, and with startling success during the past hundred years, laboured to free humanity from disease and to promote the health of the individual. Doctors hardly needed to be told that this was an ideal to be aimed at and were eager to explore ways in which their beneficent activities could be made more effective. The opposition that the medical profession has offered to successive proposals by Ministers of Health belonging to different political parties clears it from any accusation of party political bias. The opposition is directed against the political control and management through a bureaucracy of the art and science of Medicine and against the employment of medical men by a member of His Majesty's Government. Medicine has never claimed immunity from constructive criticism, or that its services to the community are incapable of improvement. Though individual doctors, through human weakness, may have faltered, each generation of medical men has remained faithful to its high ideals and through this has brought Medicine to the present high position it holds. No one has denied the need for the State organization of such communal services as are provided through the Public Health Acts. But to try to fit the care and treatment of the individual patient by the individual doctor into a national framework is a matter of the highest complexity and one which the planners of Medicine are incapable of fully understanding. The sick person must, of course, have confidence in the medical skill of the doctor, and the degree of skill a medical man has depends not only upon himself but upon those responsible for his technical education. As a science Medicine is full of uncertainties, and a good doctor knows its limits. As important to the sick person as the technical skill of the medical man is his quality as a human being coming into one of the closest relationships that exist between human beings. This is something that the planner, thinking along quantitative lines, fails to take into account and is possibly incapable of comprehending.

The results of the plebiscite show the deep-seated doubt all sections of medical men have about the effect upon the quality of Medicine of the State medical service foreshadowed in the National Health Service Act. There are compelling reasons for keeping Medicine independent of the State. If, however, the people of this country through Parliament, in the face of what we consider to be the better judgment of the medical profession, pursue with success the idea that a paternal State should provide every kind of medical service, then the medical profession must at least see that within the State framework the maximum amount of freedom and independence of the medical man is made secure. In its present form the Act does not provide safeguards for this freedom and independence, and if the Government fails to provide them the National Health Service Act will be an inglorious failure.

STUDENT HEALTH

In recent years an increasing number of physicians have been appointed at British universities and colleges to supervise medical health services, yet nowhere in this country is there a comprehensive service operating to the full extent considered appropriate by the university delegates to a recent conference on student health.[1] An important lead was given in 1944 by the Goodenough Report,[2] which recommended that universities should set up student health services, and Cambridge has recently appointed Air Vice-Marshal A. F. Rook for this purpose. In 1946 the Social and Preventive Medicine Committee of the Royal College of Physicians recommended arrangements for medical examination, including chest *x*-ray and annual re-examination during the student's stay at the university, in order to detect physical and mental disabilities and to indicate how advice or treatment should be obtained if necessary. This committee also suggested that arrangements should be made for the medical and nursing care of students who are ill, and drew attention to such matters as diet and lodgings. Though not as yet generally adopted, schemes for the provision of medical treatment are obviously important, but with sickness provided for more attention can be directed to the preservation and promotion of health.

The present position is summarized in the most recent report of the health committee of the National Union of Students. Among 38 universities and university colleges, 57 training colleges, and 33 technical colleges, 42% have no medical examination or certificate at entry, 30% no provision for advice or remedial service, 36% no arrangement for calling a medical practitioner, 39% pay no attention to lodgings, and in 69% there is no examination for tuberculosis. Generally speaking training colleges are better provided for than universities and university colleges; the position in technical colleges is worst. These arrangements as a whole are in marked contrast to those in universities in the United States.

In the U.S.A. student health organizations have benefited by more than twenty years' experience. There the best medical advice in health and sickness has been made available to students, who have in their turn furnished excellent material for the study of normal young adults, particularly as regards standards of measurement and the ranges of normal variation. The Grant study of young men at Harvard is perhaps the best known on this side of the Atlantic, and the rapidly extending literature concerning student health reveals that the interest has shifted from sickness to health. This reorientation of outlook requires a form of training for physicians different in its scope from the traditional one of hospital practice, and it is perhaps noteworthy that in the study of normal personality the terms of psychopathology have often been found less suitable than words in common English usage.

The factors influencing the welfare of students are those of everyday environment and their genetic endowment. They include such items as the quality of teaching, the cost of food and lodgings, hours spent in travel or queues at eating-houses, pressure of examinations, the wish to justify financial grants, hours of study often self-imposed and excessive, the loneliness of isolated digs, and at the present time for ex-Servicemen the problems of readjustment to civil life. Such factors assume major importance because they impinge on young life still hopeful of attaining full physical stature, sexual maturity, and intellectual power. A physician with responsibility for young adults has a rare opportunity to guide, to reassure, or to warn at the first sign of disorder. Given understanding and an outlook appropriately sympathetic he may create an atmosphere in which difficulties can be discussed rationally and thus be more easily dispelled. Measurements of physique or personality made at the first interview serve as a base-line against which future observation during the student's residence takes on new meaning. With this purpose in view, with or without an added stimulus of research, what might be a monotonous routine examination can become a lively and sustaining activity.

We publish this week a survey by Dr. J. Pemberton of the health of 407 new students. Because examination after entry was made obligatory for all students at Sheffield his survey covers a fully representative group, and from the findings it should be possible to plan for the future. A case may be established for routine dental and ophthalmological examination, and the ready availability of an E.N.T. surgeon is clearly desirable. With regard to mental health, Pemberton found 20% of students were suffering from minor anxiety states or depression. This proportion corresponds with that found by other workers in this field[3] and its importance lies in that the majority may be relieved by relatively simple measures, as for example the adjustment of financial grants, or more simply opportunity for discussion and advice. Even more serious psychological disturbances are not uncommon, as the high wastage rate among students who start but fail to stay the course suggests. Though Pemberton reports no example of attempted or successful suicide, such occurrences are frequent enough to constitute a special problem in which community responsibility is deeply concerned. In addition, in the words of the report to the Royal College of Physicians, "the development of a psychosis in a student already embarked on his University career may prove for all concerned a major tragedy, which could have been foreseen and perhaps prevented." Its detection is no less important than the early signs of pulmonary tuberculosis. In view of the foregoing remarks the question of the value of routine psychiatric interview may be raised. Experience to date is limited, but at one well-known university in the U.S.A. mental hygiene examinations were instituted as part of the routine health examination of all first-year students. They were, however, discontinued after four years as it was found that students wanting psychiatric help would seek it, whereas those who did not would not be coerced. Results failed to justify the additional organization, work, and cost.

If it is the purpose of university education to encourage the fullest and best use of all human attributes, then

[1] Nuffield Foundation, Student Health Conference, 1947, Oxford.
[2] *Report of Inter-departmental Committee on Medical Schools*, 1944. London: H.M.S.O.
[3] Parnell, R. W., *Lancet*, 1947, **2**, 939.

physical and social development should come second only to the cardinal and traditional aim of intellectual development. Many students reach the university to-day with great intellectual achievement to their credit but possessing neither physical nor social maturity. Facilities to develop in both these directions are necessary, not so much for the star performers in any field, who have little difficulty in following their bent, but mainly to foster the powers and enjoyment of the remaining majority. Preliminary surveys suggest that only a small minority balance their studies with regular outdoor activity. For example, it is probable that many students are unable to swim fifty yards, yet even a young person with severe kyphosis and unfitted for most sports may overcome his handicap by learning to swim on his back. Physical exercise need not be limited to the usual field games but may well include mountaineering, dancing, ski-ing, canoeing, beagling, and other activities according to individual taste. It is not generally realized that where compulsory physical education for first-year students has been in force the university authorities have had no easy task in providing facilities for so wide a variety of recreations.

The question of making routine health examinations compulsory, and also physical recreation, has been closely argued. In most universities on the Continent and in the U.S.A. obligatory examination is fully accepted. Some medical officers in charge of student health services in this country may feel that they could be more effective if medical examinations were compulsory. Medical examination of school-children is accepted by nearly all parents as a necessary and useful adjunct to education. Though not exactly compulsory, under the Education Act of 1944 parents can be induced in certain circumstances to allow their children to be examined. Students attending a university are no doubt supposed to be old enough to know what is good for them, and in any case it is one of the primary functions of education to develop a sense of responsibility in young people. It can be said, however, that where medical examination has been made compulsory at a university little if any harm has followed. Student health services, to develop satisfactorily, should have that voluntary spirit which seeks and finds the answer to individual needs.

RHEUMATOID ARTHRITIS—A NEUROLOGICAL DISEASE?

The cause of rheumatoid arthritis remains unknown. Since the disease was differentiated from other forms of arthritis in the nineteenth century many causes have been suggested,[1] and a number of eminent observers have looked with suspicion at the central nervous system. Charcot[2] and Pierre-Marre were impressed by the bilateral symmetry and centripetal spread of the disease. Weir-Mitchell produced a neurotrophic hypothesis. More recently Speransky in the U.S.S.R. has suggested that the disease is a specific nervous distrophy, and interest has been aroused in the technique of "spinal pumping" which was first advocated by him. Elsewhere in this issue Savage describes this method of treatment and reports on the results obtained in four cases of rheumatoid arthritis. Obviously with such a small series nothing conclusive can be said, but it seems unlikely that completely successful results will be frequent.

Of the three ways—psychological, autonomic, and neurological—in which the central nervous system might be involved in the development of the disease the neurological features have received considerable attention in recent months. They include the paresis and atrophy which affect the muscles of the extremities, and the trophic changes associated with disease of the autonomic system. Sundelin[3] believes the symptoms indicate that both the central and autonomic nervous systems are involved. He examined the cerebrospinal fluid from 141 patients, and the only abnormality he discovered was a change in the protein level. In 41% there was either a rise in globulin or an alteration in the A.G. quotient, sometimes associated with a rise in total protein. These findings were not connected with the duration, severity, or activity of the disease, nor with the previous administration of gold salts.

Alteration in the cerebrospinal fluid proteins may be related to the cause or to the effects of the disease, and Sundelin refrains from drawing any debatable conclusions. In rheumatoid arthritis it is not unusual to find an abnormal blood-protein value, with alteration of the A.G. ratio and a rise in globulin level. The empirical tests of liver function may be positive, and these probably depend upon a rise in globulins. The cerebrospinal fluid changes may be only a part of a general alteration in protein levels, possibly depending on the position of globulins in the immune response. Combined observations on cerebrospinal fluid and blood would help to clarify this point.

The muscle paresis and atrophy which Sundelin claims to be neurological features might be related primarily to the altered muscle histology. In rheumatoid arthritis muscle biopsy nearly always reveals focal accumulations of lymphocytes, plasma cells, and eosinophil cells around the nerves and in the endo- and perimysium.[4] If rheumatoid arthritis is a neurological disease, then the C.S.F. findings of Sundelin would suggest a degeneration rather than an infection of the central nervous system.

1 Copeman, W. S. C., *Proc. R. Soc. Med.*, 1947, **40**, 329.
2 *Arch. Physiol.*, 1868, **1**, 161.
3 *Amer. J. Med.*, 1947, **2**, 579.
4 Gibson, H. J., *et al.*, *Ann. rheum. Dis.*, 1946, **5**, 131.

CERVICAL INTERVERTEBRAL DISK LESIONS

Lesions of the intervertebral disk, with protrusion of some of its substance into the spinal canal, is now a well-recognized cause of lumbo-sacral sciatica. The cervical region of the spine has many anatomical and mechanical features in common with the lumbar region. There is, however, the important difference in the cervical region that the intraspinal neural structures, which here include the spinal cord, are relatively more fixed and the nerve roots have a more direct passage through their intervertebral foramina. In the cervical region there are numerous causes for pain referred to the neck, shoulder, and arm. Kristoff and Odom[1] have studied twenty cases of ruptured cervical intervertebral disk. This type of case was first described by Stookey in 1928 as one of compression due to extraneural cervical chordomas, but it is only in the last few years that much has been written on the subject.

Kristoff and Odom believe that in all probability such lesions are traumatic in origin. Rupture of a cervical intervertebral disk results in some of its substance extruding into the spinal canal, generally causing root compression. Where these protrusions are large the case may be complicated by spinal cord compression. Pain and paraesthesia are of radicular distribution. When the sixth cervical root is compressed by the fifth intervertebral disk the area of distribution will be the radial side of the forearm, thumb,

Arch. Surg., 1947, **54**, 287.

and index finger, associated with weakness mainly of the deltoid and biceps muscles and a diminished biceps reflex. A rupture of the sixth disk with involvement of the seventh cervical nerve root will cause pain and paraesthesia on the extensor side of the forearm, the dorsum of the hand, and one or all of the three middle fingers, associated with weakness chiefly of the triceps muscle and a diminished triceps reflex. These are the two segments most commonly involved. A reliable sign is to hyperextend, flex, and bend the head towards the side of pain—manœuvres which aggravate it and the paraesthesia. Radiologically, degenerative changes in an intervertebral disk may be recognized, but their absence by no means rules out the possibility of a disk lesion.

The common conditions which may cause difficulty in diagnosis are cervical arthritis, scalenus anticus syndrome, laminal fractures, cervical ribs, subdeltoid bursitis, brachial neuritis, Pancoast's tumour, and cervical radiculitis. In the cases with larger protrusions the need for exploration is clearer because of the signs of spinal cord tumour. Here the pain in the neck or shoulders will be overshadowed by neurological changes in the upper limb. The operative procedure in the neck is somewhat similar to that for the lumbar region, but there is of course a bigger element of risk. The authors note that, while both the subjective complaints and the defensive signs will be banished by removal of the protruding portion of disk, disappearance of the neuro-pathological signs depends upon the duration of root compression Furthermore they state that in cases of cord compression recovery may be neither spectacular nor always complete. They give a very clear exposition of this subject, the limits of which seem to be more clearly marked than in the comparable condition in the lumbo-sacral area.

ALUMINIUM PNEUMOCONIOSIS

Powdered aluminium has been very widely used during the past decade in ordnance factories and in making paints, and many thousands of workers have been exposed to dust in working aluminium alloys. The health of the workers in these industries has been generally satisfactory. Crombie and his colleagues[1] in Canada, and Hunter and his co-workers[2] in England, have been unable to demonstrate radiologically any changes in the lungs. This is only to be expected because of the low atomic weight of aluminium. Since Denny, Robson, and Irwin[3,4] suggested that the inhalation of powdered metallic aluminium might prevent the development and progression of silicosis large numbers of miners in Canada, the United States, Australia, and Cornwall have received the treatment. These men have all been under careful observation, and up to the present no adverse effects have been recorded.

Despite this experience Goralewski,[5-8] in Germany, has repeatedly described a disease attributed to aluminium dust. The powder was made at Guntherstahl by the Pyro process. It was stamped, but a minimum of either ceresine or petroleum-jelly substitute was used to lubricate the powder in the stamping machines—not more than 0.01% appeared in the final product. The aluminium powder, which was 98% metallic aluminium, contained about four milliards of particles per gramme of dust—97.5% of the particles being less than 5 μ in diameter—and many of the factories were blown up because an explosive concentration of aluminium dust was reached. Seven hundred workers were examined, and many complained of dry cough with pain on breathing, shortness of breath, poor appetite, and gnawing abdominal pain. Spontaneous pneumothorax occurred in four workers. Blood counts revealed a relative lymphocytosis with an eosinophilia up to 10%. The sedimentation rate was within normal limits in 78% of the cases, and the vital capacity was decreased in 27 out of 125 men examined. Radiographs showed focal shadows in the apical region with an increase of normal bronchial markings in the upper and middle thirds of the lung, giving a reticular appearance which at a later stage tended to increase and become confluent. There was always marked emphysema at the bases. The development of the illness was rapid, often within three months of starting work. It appeared to bear no relation to the length of exposure to aluminium. Histological examination of the lung of a patient who died revealed coarse, branching, hyaline collagenous fibres which enclosed phagocytes containing fine and coarsely granular particles distinguished by their jagged outline from carbon particles. A similar picture was produced in animal experiments by Jötten and Eickhoff.[9]

Shaver and Riddell[10] have now recorded an identical disease from the Niagara region of Canada in workers manufacturing corundum—an aluminium oxide abrasive of great hardness. Bauxite, iron, and coke are treated in electric furnaces. They are ground and intimately mixed in metal pots 6 ft. high and 6 ft. in diameter; large carbon electrodes are then lowered to the surface of the mix, which is fused at 2,000° C. The resultant dense white fumes contain considerable quantities of alumina and silica together with small quantities of many other substances all in a very fine state of division. Three hundred and forty-four men were employed in connexion with the furnaces, and in 23 of these *x*-ray examination revealed well-established changes in the lungs. There were also 12 early and 13 doubtful cases. There have been 7 deaths, and 8 of the workers have had bilateral spontaneous pneumothorax. Dyspnoea was the outstanding symptom. Cough with white frothy sputum, substernal discomfort, weakness, and fatigue were also noted. The attacks of dyspnoea and pain were often sudden. Signs of disease in the chest were variable and depended on the presence or absence of pneumothorax. Limited chest expansion and impaired percussion note were most commonly observed; rales and rhonchi were variable. Tachycardia and cyanosis were marked features. *X*-ray examination revealed extensive fibrosis with areas of gross emphysema. At necropsy emphysematous blebs and bullae were found on the surface of the lung, the substance of which was invaded by dense tissue of a fibrous character. Microscopically the chief features were extensive fibrous tissue formation and extreme emphysema. The fibrosis was not nodular. The result of ashing three lungs was:

	Ash of Dry Weight	Silica of Dry Weight	Silica in Ash	Alumina in Ash
	%	%	%	%
1	5·87	1·49	25·3	Not obtained
2	7·22	1·80	24·9	45·63
3	9·66	2·95	30·5	32·08

Jager and Jager[11] observed that while aluminium powder is highly resistant to aerial oxidation it is freely soluble in sodium chloride solution, giving sodium aluminate and aluminium chloride in equilibrium. A colloidal aluminium hydroxide complex results if the sodium and chloride ions are allowed to diffuse away, and if protein is also present

1 *Canad. med. Ass. J.*, 1944, **50**, 318.
2 *Brit. J. industr. Med.*, 1944, **1**, 159.
3 *Canad. med. Ass. J.*, 1939, **40**, 213.
4 *Industr. Med.*, 1939, **8**, 133.
5 *Arch. Gewerbepath. Gewerbehyg.*, 1939, **9**, 676.
6 Ibid., 1940, **10**, 384.
7 Ibid., 1941, **11**, 106.
8 *Dtsch. Tuberkbl.*, 1943, **17**, 3.
9 *Arch. Hyg. Berl.*, 1942, **127**, 344.
10 *J. industr. Hyg.*, 1947, **29**, 145.
11 *Arch. Gewerbepath. Gewerbehyg.*, 1941, **11**, 117
12 *Beitr. klin. Tuberk.*, 1942, **97**, 688.
13 Perry, K. M. A., *Thorax*, 1947, **2**, 91.

it is co-precipitated round the partly dissolved aluminium particles. Jager and Jager think that this complex caused the lung changes in the German workers. Koelsch,[12] however, believed that mechanical factors were responsible, and that the disease was a consequence of the unsatisfactory ventilation of workrooms resulting from the black-out. The suggestion has also been made that the lubricant might have been a cause of the condition,[13] but this seems improbable since only minimal amounts were used. Canadian investigators think that the disease may be a form of silicosis caused by vaporized silica, but this also seems unlikely. There can be little doubt that the disease described in Germany and that in Canada are one and the same, and while silica was present in the Canadian manufacturing process it certainly was not in the German. The exact aetiology of the condition therefore remains a mystery, but it now seems probable that aluminium in certain physical states is capable of producing a pneumoconiosis.

RESECTION OF TUBERCULOUS LUNG TISSUE

In 1891 Tuffier successfully removed an indurated tuberculous area from the upper lobe of the lung, his patient surviving for seven years. Since then sporadic reports of similar operations have appeared, but until the last decade the successes were outnumbered by the failures, most of which were due to the great technical difficulties. With the rapid advance of thoracic surgery in the past few years many of these difficulties have been overcome, and thoracic surgeons, particularly in the U.S.A., are reporting an increasing number of successful pulmonary resections for tuberculosis.

Overholt and others,[1] in an important communication, record 88 resections with a follow-up ranging from 2 to 12 years. Their indications for operation were varied, the commonest being extensive, predominantly unilateral disease. Many patients had spreading caseous-pneumonic lesions or large cavities at the time of operation. Resection was also undertaken for bronchiectasis and suppuration complicating phthisis, and after unsatisfactory thoracoplasty. Tuberculous bronchial stenosis was present in many instances. Lobectomy was performed in 34 patients, with 7 deaths, the most important complication being a spread of the disease into the remaining lobes. Of 58 patients who had pneumonectomy 24 died, and again spread of tuberculosis into the remaining lung accounted for many of these deaths. Other complications were tuberculous empyema and ulceration of the severed bronchus. Against this somewhat grim picture must be set the fact that 12 patients with lobectomy and 24 with pneumonectomy are reported to be well and working; also in many of these patients the risk of operation was a desperate one. In a more recent paper Bailey[2] reports the results of 80 pulmonary resections for tuberculosis. His mortality for lobectomy was 8 out of 32 cases, and for pneumonectomy 15 out of 41. Seven segmental resections were performed without a death. Like Overholt he advocates the routine use of thoracoplasty after pneumonectomy in tuberculous patients to close the residual space—a procedure which makes the operation more severe. Both these authors stress the importance of surgical and anaesthetic technique in the prevention of complications, and it is clear that these operations should be undertaken only by a skilled thoracic surgeon working with a trained team.

When considering the indications for pulmonary resection we must not forget that in tuberculosis we are dealing with a widespread infection of which the lung lesions are, in Sir Robert Philip's words, "a late visceral manifestation." In carcinoma of the bronchus or bronchiectasis radical removal may be achieved, but in tuberculosis the most that can be expected is that the removal of some of the major foci may enable the patient's resistance to overcome the less obvious lesions. It is not surprising that such a severe procedure may sometimes have the opposite effect and exacerbate latent disease elsewhere. Nevertheless, this operation offers a possibility of improvement in a few types of pulmonary tuberculosis in which the prognosis has hitherto been almost hopeless. These include suppuration distal to a tuberculous bronchial stenosis, basal disease unaffected by simpler methods of treatment, large tension cavities, and a few instances of acute unilateral caseous disease.

[1] *Amer. Rev. Tuberc.*, 1947, **55**, 198.
[2] *J. thorac. Surg.*, 1947, **16**, 328.

THE ACTION OF BOTULINUM TOXIN

There are few poisons so potent as botulinum toxin. According to Guyton and MacDonald[1] a pure crystalline preparation would probably prove fatal to man in a dose of a quarter of a millionth of a gramme. These workers have recently thrown light upon the site and mode of action of the toxin, their technique being designed to produce complete paralysis either of a single muscle or of the whole animal. The gastrocnemius of a guinea-pig could be paralysed by the local injection of toxin, general paralysis and death of the animal being prevented by systemic administration of antitoxin two days later. In the other method systemically poisoned and completely paralysed rabbits were kept alive by artificial respiration and vasoconstrictor drugs for the duration of the observations, which consisted in measurement of action potentials and responses of the muscles to various stimuli. The experiments were made with type A toxin.

There was no evidence that botulinum toxin acted on the nerve trunks, and the paralysed muscles responded to direct stimulation in the same way as denervated muscles. The site of action is therefore in the terminal nerve fibrils or, as Bishop and Bronfenbrenner[2] suggest, at the myoneural junction. Oscilloscopic measurements of the delay in conduction, recorded by Guyton and MacDonald, support the theory that the myoneural junction is affected, and histological examination shows swelling of the end-plates and dissolution of the granules of Kühne. Neostigmine fails to avert paralysis due to botulinum toxin, and the completely paralysed muscles still respond to acetylcholine. In these respects the action of the toxin differs from that of curare. It seems probable that in botulinum poisoning acetylcholine is not produced at the end-plate or, from the evidence of other experiments, at the endings of the vagus nerve. The toxin also causes peripheral circulatory failure. It does not pass the blood-brain barrier, so that symptoms referable to the central nervous system are not observed. It has a molecular weight of about 1,000,000, and its properties suggest that it may be a destructive enzyme.

It is of interest to note that antitoxin given two days after the subcutaneous injection of a lethal dose of toxin saved the lives of guinea-pigs even after some symptoms of intoxication were present. Once poisoning of nerve endings has occurred antitoxin cannot restore the damaged end-plate. Observation of local paralysis in guinea-pigs showed that recovery of muscular contraction and action potential was almost complete in one year. From the nature of the damage and the prolonged time to recovery noted in the experimental animals improvements in the treatment of botulism in man are unlikely, and hope seems to lie mainly in the early use of multivalent antitoxin in large doses.

[1] *Arch. Neurol. Psychiat.*, Chicago, 1947, **57**, 578.
[2] *Amer. J. Physiol.*, 1936, **117**, 393.

TUBERCULOSIS IN THE BRITISH ZONE OF GERMANY

REPORT OF AN INQUIRY

The Foreign Office published on Tuesday, March 9, a report[1] prepared by the Medical Research Council at the suggestion of the Ministry of Health on certain aspects of the tuberculosis problem in the British Zone of Germany. The authors of the report are Dr. M. Daniels and Dr. P. D'Arcy Hart.

The report points out that death rates form the most reliable basis for judging tuberculosis trends. Annual death rates are best, but over the comparatively short post-war period six-monthly figures may justifiably be used provided that a first half-year is not compared with a second half-year, since the death rates from tuberculosis are normally higher in the first half of the year. During the post-war period the death rate from pulmonary tuberculosis in Hamburg has declined, while in the three Laender the figures show little evidence of change. The death rate from non-pulmonary tuberculosis has also declined slightly in Hamburg, remained stationary in Schleswig-Holstein, and increased somewhat in the other two Laender. The relevant figures for the Zone as a whole are as follows:

Tuberculosis Mortality, 1946–7, in British Zone as a Whole

Half-years	Population	Deaths		Crude Annual Death Rates per 100,000		
		Pulm. Tb.	Other Tb.	Pulm. Tb.	Other Tb.	Tb. All Forms
1946 I ..	21,891,000	6,823	891	62	8	70
II..	22,902,000	5,083	801	44	7	51
1947 I ..	22,868,000	6,966	1,096	61	10	71

Clearly, while no fall in tuberculosis mortality has taken place, there are no signs of any alarming increase. These figures should also be considered in relation to the rates existing before and during the war. The 1946 death rates are higher than the pre-war rates, but the main rises occurred during the war period. Indeed, in Hamburg and part of Nordrhein-Westfalen the war rise appears to have been checked in 1945. Death rates in the British Zone are very similar to those in the United States Zonal Regions, which in 1946–7 ranged from 49 for Bavaria to 91 for Bremen. The crude death rate from all forms of tuberculosis in Bremen should be compared with the Hamburg figures of 101 in 1945 and 85 in 1946. The corresponding figures for London in the same two years were 87 and 70. The rates for Hamburg in fact are considerably less than those obtaining in Glasgow and Liverpool, and in Paris, Warsaw, and Rome.

The proportionate tuberculosis mortality, the number of deaths which occurred from this disease expressed as a percentage of annual deaths from all causes, also confirms the view that tuberculosis does not figure more largely among health problems in the British Zone of Germany than in Great Britain. The figure for England and Wales for 1945 was 4.8% as against 4.2% in Niedersachsen and 4.5% in Schleswig-Holstein in 1946. The figure of 5.7% in Hamburg in 1946 may be compared with the 1945 figures for London 5.5% or for Manchester 6.4%.

Registration and Notification

In the British Zone there are two methods of reporting deaths, and in certain small towns and country districts lay people can complete death certificates. Attention is drawn to the difference in Schleswig-Holstein between the uncorrected total of 2,746 registered tuberculosis deaths in 1946 and the corresponding "verified" total of 1,655. Where medical certification is compulsory the figures of registered deaths are regarded as a fairly correct measure of tuberculosis mortality. Apart from this method of registration of a death, deaths from tuberculosis must be notified by the medical practitioner directly to the health police of the Health Department. This is not always done, however, and the total notifications of deaths from tuberculosis tend to be less than death registrations even in the large towns.

[1] *Tuberculosis in the British Zone of Germany*, 1948. London: H.M.S.O. 6d. net.

Four suggestions are put forward for improving the value of the mortality figures supplied to Regional Public Health Branches. (1) Tuberculosis death figures (pulmonary and non-pulmonary) should be supplied quarterly instead of weekly as at present. (2) These quarterly figures should be derived from registered deaths and so stated, the figures being "officially verified" where this procedure is necessary. (3) Tuberculosis death registration figures should be accompanied by figures for deaths from all causes, so that proportionate tuberculosis mortality figures can easily be calculated. (4) The German Land authorities should be persuaded "to make medical certification a prerequisite of burial throughout their territories."

Tuberculosis Morbidity

The fact that tuberculosis mortality rose during the war but has altered very little since then and that the present rates are not disturbing when considered in relation to those in Britain and other countries was not disputed by the German authorities. All of them emphasized, however, the considerable increase in morbidity in the past year. The report points out that since 1925 there has been in fairly general vogue in Germany a classification of cases of pulmonary tuberculosis requiring care into three groups: (*a*) infectious tuberculosis of the lungs with bacilli discovered; (*b*) infectious tuberculosis of the lungs with no bacilli discovered; and (*c*) non-infectious but active tuberculosis of the lungs. The recent remarkable rise in practitioners' case notifications is simply explained, and the report confirms the suggestion made in our columns that the rise was almost entirely due to a change in the methods of notification (*Journal*, Feb. 28, p. 424). Until 1938 doctors notified cases in group (*a*) only. From December, 1938, to September, 1946, doctors notified cases in groups (*a*) and (*b*) only. Since September, 1946, practitioners have notified cases in groups (*a*), (*b*), and (*c*). The recent steep rise in pulmonary tuberculosis case notification rates represents therefore largely a "paper increase." The recent extension of notifications has gone far beyond the original intention of bringing in fresh categories of cases of tuberculosis so as to give a more accurate picture, and has allowed the notification of many equivocal cases that would not be notified in British practice. It is shown too that a wide definition was being variously interpreted by different authorities and by different physicians. An incentive to exploit the definition now permitted is provided by the entitlement of dispensary-approved cases to extra rations. For these and other reasons which are set out at length the two investigators concluded: "We must state categorically that we attach no significance whatever to statistics of pulmonary case notifications as an index of current tuberculosis trends in the British Zone."

These objections do not apply with the same force to the regular returns made by tuberculosis dispensaries to the Land Health Departments. All three categories are again included, and under (*c*) there were notified doubtful active cases, children whose radiographs merely showed "enlarged hilar shadows," and even clinically normal infants with positive tuberculin reactions. On the other hand, these dispensary registration figures are based on specialist opinions and the pulmonary cases are subdivided at source into categories (*a*), (*b*), *and* (*c*) so that the numbers may be considered in each category. An analysis of the dispensary statistics of new cases registered over a number of years in Hamburg, Hannover Province, and Schleswig-Holstein shows no marked increase since the end of the war in the more serious forms of pulmonary tuberculosis —(*a*) and (*b*)—but a considerable rise in the registration of those earlier or lesser forms represented by group (*c*). There has also been a recent rise in new non-pulmonary cases of tuberculosis.

At the end of 1946 there were 200,000 cases on the tuberculosis dispensary registers of the British Zone. The report points out that at the end of 1946 there were 244,000 definite cases of tuberculosis on the tuberculosis dispensary registers of England and Wales, with a population nearly twice as large. The British total, however, is based on criteria which would exclude the German category (*c*) in which there were 122,000 of the British Zone cases. To improve the dispensary figures it is again suggested that case figures should be supplied quarterly, that they should comprise only cases newly seen at and registered on, the books of the tuberculosis dispensaries.

and that they should be tabulated under the customary groups. These returns should contain only definite cases and should exclude suspects, contacts, and otherwise normal tuberculin-positive children. A survey of the findings after mass radiography in three areas also suggests that the incidence of tuberculosis is not notably high.

Hospital Accommodation

It is customary to assess the degree of adequacy of in-patient accommodation for tuberculosis by the ratio of the beds available to the annual number of deaths from the disease. This rate for the Zone as a whole is 2.2 and should be compared with 1.3 for England and Wales. It also compares favourably with the rates obtaining anywhere in Europe, excepting Scandinavia.

Detailed comparison of the arrangements in Lancashire, a county with an advanced anti-tuberculosis service, bears out the finding that "on no count, therefore, is the British Zone worse off than this country as to institutional accommodation; and on the most reliable basis of ratio of beds to annual deaths, it is considerably better."

Two further points are made in the report on the Zone. The fact that tuberculosis mortality increased more among males than among females during the war is ascribed partly to a selective factor—healthy young men were enlisted and the statistics relate, therefore, to the remaining male population—and partly to the greater strain of wartime conditions borne by males. The increase in the mortality from non-pulmonary tuberculosis and in the incidence of new cases is probably due to a failure of efficient pasteurization. Much of the pasteurization plant was damaged during the war and it has since then been subject to general deterioration and reduced efficiency. Fuel shortages have also made pasteurization difficult.

Tuberculosis in Berlin

Although the main study was in the British Zone the position in Berlin was also investigated. The increase in tuberculosis mortality during the war was much greater in Berlin than in the Zone. The present level of mortality is also much higher and constitutes a grave problem, even though the mortality from non-pulmonary tuberculosis is at present stationary and the mortality from pulmonary tuberculosis appears to be declining. Institutional provision for the tuberculous in Berlin at a rate of 0.7 beds per annual tuberculosis death is much inferior to that of the British Zone. The actual number of cases of "active" tuberculosis on the dispensary registers in Berlin in August, 1947, was 79,331 in a population of 3.2 millions. It was made up of 11,694 cases in group (*a*); 9,893 in group (*b*); 49,673 in group (*c*); and 8,071 non-pulmonary cases. Even allowing for the questionable significance of group (*c*) this total is two and a half times the corresponding pre-war total incidence and is much higher than that in the Zone.

This is an important report and one which should be carefully studied. It amply confirms the statement made in our leading article (Nov. 30, 1946, p. 821) that "available figures do not bear out alarmist reports of the incidence of this disease in the British Zone." The detailed survey and the tables and graphs fully support the general discussion which is here summarized, and confirm a final statement made by the authors:

"We must refer here to the regrettable fact that German officials (some non-medical) have repeatedly during the past year issued to Allied journalists and other visitors misleading and sometimes even false information regarding the tuberculosis situation in Germany. These statements have had the effect of putting tuberculosis in Germany unjustifiably on the level of a sensational news item. Moreover, since it is generally known that tuberculosis figures are a sensitive index of social conditions, sweeping conclusions as to these conditions have been drawn from erroneous data."

The head of the U.S. Federal Security Administration, Mr. Oscar Ewing, estimates that in 1960 the U.S.A. will need from 15,000 to 30,000 more doctors than will be available, and he recommends the establishment of Government financed scholarships for the training of medical men, dentists, nurses, and public-health staff. He said that Congress ought to use Federal resources if necessary to overcome shortages.

WORLD HEALTH ORGANIZATION

INTERIM COMMISSION

The Interim Commission of the World Health Organization met in Geneva from Jan. 22 to Feb. 7, under the chairmanship of Dr. Andrija Stampar, president of the Yugoslav Academy of Sciences and Arts. In the course of this session the Interim Commission approved a report on its activities which will be submitted to the World Health Assembly meeting at the Palais des Nations in Geneva on June 24. It is generally expected that the Interim Commission, which has bridged so ably the unexpectedly long gap between its creation at the International Health Conference in New York in 1946 and the first meeting of the World Health Assembly, will be formally dissolved within one or two months of the adjournment of the Assembly.

The Interim Commission drafted the agenda for the Assembly, which will have to select a Director-General for W.H.O., and also examined proposals relating to the permanent site and the 1949 budget for W.H.O. A number of nations have already declared their preference, and so far Geneva heads the list, with New York, Paris, Washington, and London as alternative suggestions. The proposed 1949 budget amounts to $6,367,995, which is more than twice the Interim Commission's budget for the first year of its work. Of this sum, over $1,000,000 will be set aside for the provision of fellowships, medical literature, teaching equipment, and emergency medical supplies.

Proposed Programme

The following are among the major recommendations of the fifth session of the Interim Commission, and will in due course be submitted to the World Health Assembly:

Medical co-operation with accredited governmental and non-governmental agencies should be continued. It was recommended, therefore, that the Assembly adopt the draft agreements drawn up by the Interim Commission with several United Nations Specialized Agencies. These agreements provide that the W.H.O. shall serve in an advisory capacity in the fields of public health and State medicine with the following organizations: the International Civil Service Advisory Board, the U.N. Social Commission, the U.N. Scientific Conference for the Conservation and Utilization of Resources, I.L.O., U.N.E.S.C.O., and F.A.O. Collaboration between W.H.O., I.C., and F.A.O. on nutrition projects has already started.

The Interim Commission, which is collaborating with the International Children's Emergency Fund, will continue to advise the I.C.E.F. on the programme for immunization of 15 million people against tuberculosis to be undertaken by 200 expert medical teams within the next eighteen months. At the fifth session Interim Commission help was requested by the I.C.E.F. in launching an antivenereal campaign among children, pregnant women, and nursing mothers through mass treatment with penicillin. Continuation of medical guidance by the permanent W.H.O. was recommended in relation to these two programmes.

The Interim Commission recommended continuation and enlargement of the epidemiological service. A more efficient and quicker system of epidemiological notifications will be established.

In addition to these major projects it is hoped that the 1949 budget will provide for further work in connexion with nursing, rural hygiene, alcoholism, and a number of tropical diseases. The need for revision of existing sanitary conventions was debated after Dr. A. T. Shousha Pasha, the Egyptian Under-Secretary of State for Health, had presented his report on the 1947 cholera outbreak in Egypt. Several countries took measures to prevent the spread of cholera far exceeding the provisions of the international conventions. The Governments concerned will be asked to explain the scientific grounds on which such action was based.

The Interim Commission also recommended the continuance of work on biological standardization and unification of pharmacopoeias. The creation of an international influenza centre is now well under way, and it is suggested that W.H.O. should press forward also the campaigns against important communicable diseases and for the promotion of child health. Malaria and tuberculosis are the two diseases given "top priority" in the list of Interim Commission recommendations, and the large-scale application of penicillin in the treatment of early syphilis is also proposed.

At the final meeting Dr. Stampar paid tribute to the work of the Interim Commission over the past twenty months and said

that "never in his experience had he worked with a more co-operative and internationally minded group of people." He referred also to the unbroken record of unanimity in decisions made by the Interim Commission.

THE HUMAN APPROACH

METROPOLITAN COUNTIES BRANCH LECTURE

Another lecture in the series which the Metropolitan Counties Branch has arranged for senior students and newly qualified practitioners in the London area was delivered in the Great Hall of the Association on March 2 by Dr. Henry Yellowlees, whose subject was "The Human Approach." Dr. R. W. Cockshut, chairman of the Branch Council, presided.

Dr. Yellowlees began by contrasting the scientific and the human approach. The scientific method, he said, was by far the best yet evolved for the solution of certain kinds of problems, but there remained a vast number and variety of problems in which the scientific method could lead only to an incomplete solution or offer no solution at all. Properly used, the scientific method never led to an erroneous conclusion, because it was wisely agnostic. In everything outside pure mathematics scientific conclusions were tentative and incomplete. Science was always right, so far as it went, but there were other methods of approach which transcended it. Science was never inaccurate, but it was often pathetically inadequate.

The preclinical subjects were peculiarly suited for approach by the scientific method. Things like the sphenoid bone and the cranial nerves simply had to be learned and learned well, and that was that. But then came the clinical period and a crowd of problems which the scientific method unaided could not solve. The student passed suddenly from the laboratory and the dissecting-room to the hospital ward and the out-patient department. He was invited to deal with minds and personalities. This was called clinical material, but it did something which the specimens in the laboratories never did, it "answered back." He wondered how many of them could say that before they entered on their clinical period they had received any helpful and practical instruction on how to understand and deal with those qualities in their patients which chiefly distinguished them from the beasts of the field.

Limitations of the Scientific Approach

It had often been pointed out, Dr. Yellowlees continued, that the trend of modern medical practice and teaching was increasingly towards laboratory procedure and tests. Much of this was inevitable, and the accuracy and helpfulness of the information were not to be disputed. Its chief drawback was that the student might come to feel that the hospital physician had only to acquaint himself with the relationship of a mass of typed reports from the pathologist, the haematologist, the radiologist, the biochemist, and finally to pronounce a diagnosis largely based on their collective significance. The student was led to think that any personal investigation of the patient should be withheld so long as one single secretion or function remained untested by the experts of the clinical laboratory or the special departments, while the patient himself perambulated wearily from department to department like a "passed to you" memorandum in a Government office. This was a continuation of the scientific approach which had served the student excellently in his earlier subjects but failed him now.

The student got little help from his teachers. They had seen the human body separated out into little regions, each with its guardian angel in the shape of its appropriate specialist. It might be said that this was the time for the teachers in psychological medicine to get busy and set things right. Generally, he agreed; but at the present day the teaching of psychological medicine was lopsided and inadequate. True, psychological medicine could put up a good case for the defence. Teachers, students, doctors, the general public, all tended to sheer away from the whole subject of psychological medicine with dislike and distrust. This feeling was based on ignorance, and the ignorance was closely bound up with fear and shame, camouflaged of course, but thereby making itself only the more obvious. What would one think of a person whose funniest stories concerned the patients in a cancer hospital, or who screamed with laughter at the helpless gropings of a blind man? Yet jests about the "loony bin" remained a characteristic English sport. No brutality was intended; nevertheless he could think of only two types of establishment, apart from the mental hospital, which had analogous alternative names—the prison and the brothel.

General medicine looked with dislike and distrust on a specialty which might help it to a viewpoint it could not reach unaided. Some, indeed, called for a closer union between general and psychological medicine, but he felt with regard to much of this that the scripture was appropriate: "This people honoureth me with their lips but their heart is far from me." Exhaustive examinations were made of the lungs, the circulatory system, the digestive tract of the patient, and treatment was carried out, without a word being said about the psychological factor from start to finish, or any suggestion that it mattered in the slightest whether the patient was happy or miserable, clever or stupid, married or single, Briton or Hottentot. But every now and then the patient ceased to act like a machine and behaved not according to plan, and then they tried out the old fallacy of excluding the organic factor. As someone had said, it was not of much use talking about psychosomatic medicine if all that one did was to give an airy wave of the hand to *Psyche* as one passed along for a heart-to-heart talk in a quiet corner with *Soma*.

A Unique Specialty

At the same time Dr. Yellowlees admitted that the psychiatrist very often made "shockingly poor use" of such chances as he got, usually because he was attending too much to his own scientific problem to the exclusion of the human one. He was by no means blameless for the fact that his specialty had become a "public joke." Psychiatry, of course, had its scientific problems like all branches of medicine, and it was only fair to say that it had solved many of them brilliantly during the last twenty years. With the possible exception of anaesthetics, no branch of medicine could point to anything like the record of startling and revolutionary achievements. But psychological medicine had gone the same materialistic and mechanical way as general medicine, with less excuse and with even more tragic results. At present it was the most scientific and least human of all the specialties.

Psychological medicine was unique among the specialties. It was not only a specialty in its own right but also an essential constituent part—not a mere handmaid or hanger-on or poor relation—of all medicine. But as taught to-day it did more to illustrate the differences between itself and general medicine than to emphasize their essential unity. Generation after generation of medical students were allowed to pass through the schools without having heard the human approach to the patient so much as mentioned. "What is the use of cramming the student with the details of every medical and surgical and psychiatric procedure if he does not then know how to say 'Good morning' properly to a nervous patient?" Of course the scientific study of every branch of medicine was absolutely essential. The patients would take scientific skill for granted, but what they really wanted, whether they knew it or not, was someone who, in addition to knowing his work, could give them confidence, patience, courage, and hope. "The great majority of our patients, in their hearts, whatever they may say and do, expect us to be to them 'like the shadow of a great rock in a weary land.'"

At the annual general meeting of the Scottish Council for Health Education held on Feb. 20 at Aberdeen it was reported that public interest in health education throughout Scotland was noticeably on the increase. During 1947 a total of 252 meetings were held in Scotland, attracting an attendance of 64,483 persons—eight of them with an attendance of 14,900 being held in Edinburgh, where the Corporation organizes and finances a winter series of film-and-lecture meetings. The Council's full-time medical lecturer, Dr. Kenneth I. E. Macleod, has addressed 212 meetings in six months. Visits to schools are a regular part of his daily itinerary, but he also gives talks to youth clubs, industrial workers, and women's organizations. All the 55 major local authorities in Scotland now support the Council.

TOWARDS THE IDEAL HOME

Until March 25 some corrective for present depressions will be afforded by the Ideal Home Exhibition at Olympia, most conspicuously in the official exhibit in which the Ministries of Health, Education, Food, and Labour and National Service have combined. They have concentrated on a demonstration by tableaux, photographs, and poster displays of the services directed towards the welfare of the child from the intra-uterine to the adolescent phase. The child of to-day is to be sympathized with in some respects, but he has only to look across a hundred years to the dark age of the industrial revolution to thank his stars that he was not born then, at all events in a working-class environment. A plaster figure of a child working in a coal mine, and the suggestion of child labour in factories and mills, of starvation and neglect in workhouses, of flogging and ugly and unhealthy conditions in schools, of under-nourishment and overcrowding in the home, are contrasted with present-day conditions. These include health services for expectant and nursing mothers and young children, maternity grants, family allowances, and supplementary rations. There are school medical services and school meals, and the juvenile employment service, which endeavours to ensure that the adolescent enters an occupation for which he is fitted and for which he has some preference. The work of the special schools for blind, crippled, and delicate children and of the nursery schools is also exhibited. Statistics attractively presented bear out the same story, showing the reduction of infant and maternal mortality. One chart illustrates the milestones in the children's health service from 1862, when health visiting began.

In another exhibit the Ministry of Health depicts the housing achievements of the nation since the end of the war. The first 200,000 permanent houses have been finished and are occupied in various parts of the country, and models are shown of concrete, brick, or aluminium dwellings—three-bedroomed houses for the average family. Among other exhibits which catch the eye is a pavilion where the National Gas Council, by means of domestic interiors and life-size models, shows the uses of the newly nationalized product in what it calls the seven ages of woman. One of the tableaux shows the young woman entering upon her career as a hospital nurse and discovering to what extent gas and its by-products (drugs, dyes, plastics, disinfectants) enter into the hospital service; then we have the housewife with her enamel cooker thermostatically controlled, her refrigerator, and other equipment for the labour-saving kitchen, and finally the old dame with the comfort of her gas-coke fire. Not to be outdone by its older rival, the electrical industry shows its fluorescent light-fittings for the home, together with some ingenious space-heating equipment.

DAYLIGHT VERSUS ARTIFICIAL LIGHTING

The Illuminating Engineering Society staged an amusing, if sometimes inconsequent, debate recently on the proposition that artificial lighting is an adequate substitute for natural lighting. The proposer, a lighting engineer, claimed boldly that artificial light is not merely a substitute for daylight but an improvement upon it. If the lighting effect of the sun could be considered in isolation, apart from heat and power, it would be seen to be easily outdone by the fluorescent tube. Moreover, the lighting engineer could provide an adequate and even lighting for the twenty-four hours of the day as against a limited and varying daylight. Another speaker pointed out that an advantage of artificial light was that its colour could be changed, so as to stimulate or to soothe according to the need and the hour of the day, whereas with daylight there was no such control. If artificial light had been first in the field, said yet another speaker, if the fluorescent tube, the splendid product of years of research, had preceded the sun, people would have derided the latter when it at length arose, asking what was the use of so uncertain and wayward a source.

The sun had its defenders. Artificial light, said their spokesman, compared poorly with daylight, whether judged from the psychological, the aesthetic, or the efficiency point of view. The public showed its preference for daylight whenever it was given the chance. The blackout during the war caused much discontent among factory workers, however good the artificial illumination provided, and the discontent was assuaged by the letting in of some natural lighting. The fluorescent tube, these speakers contended, was a hideous thing—a cold bar of light apparently designed by a plumber. How magnificent a thoroughfare was Kingsway in daylight, and how grotesque at night under its new illumination with fluorescent tubes hung skittishly on concrete pillars. The protagonists of artificial lighting had said that windows were put into buildings, not to give light, but to give a sense of freedom and the opportunity for gazing out; but what array of electric bulbs could rival the light given by the Gothic window of a church or by the Victorian or neo-Georgian window of domestic architecture? One speaker had written to the welfare officers of certain American factories which were lighted only by artificial light, and they had replied that the lighting was liked moderately well, chiefly because it was uniform. But in this country at least people took a poor view of uniformity and found variety stimulating, alike in lighting and in climate. One speaker argued that there was something in the human make-up which demanded change, alternation, rhythm in lighting, and that the same was true even of lower forms of life.

The last word was with the defenders of daylight, one of whom said that on a recent visit to New York he found on the outskirts of the city very tall buildings of many stories still being constructed, but they were well spaced out so as to ensure even for the lower floors an abundance of daylight.

Reports of Societies

INHIBITION OF DENTAL CARIES BY FLUORINE

At a meeting of the Section of Odontology of the Royal Society of Medicine on Feb. 23, with Prof. HUMPHREY HUMPHREYS in the chair, Dr. ROBERT WEAVER, of the Medical Branch, Ministry of Education, read a paper on the inhibition of dental caries by fluorine.

Dr. Weaver said that in the early 'thirties it was suggested that a mottled appearance of tooth enamel was caused by the presence of a substantial amount of fluorine in drinking-water. It was not at that time realized that a very much lower concentration of fluorine than was necessary to produce mottling might inhibit dental caries. During the five years before the war, however, evidence accumulated that the inhibition of caries could be brought about by a concentration of fluorine too low to cause any unsightly mottling. In 1944 Dr. Weaver himself had referred to the low incidence of dental caries in certain areas as being possibly due to fluorine, and the evidence accumulated since then had convinced him that judgment on this point need no longer be in suspense.

Fluorine was by no means a rare element. It was now being used widely for industrial purposes, but there were few communities of any size dependent for water supply on water containing significant amounts. Most fluorine-free waters were soft; well-waters, in which fluorine was more likely to be found, were hard. The fluorine content of the diet, apart from drinking-water, was, generally speaking, low. It was relatively high in fish, perhaps up to 7 parts per million, but was largely concentrated in the bones, which were not eaten. It had been stated that baking-powder might contain a considerable quantity of fluorine.

Dr. Weaver described certain dental investigations in five-year-old and twelve-year-old children in North Shields and South Shields. North Shields water had a fluorine concentration of less than 0.25 part per million, but in South Shields water the concentration was 1.4 parts. The investigation showed that there was a lower incidence of dental caries in South Shields, but the most important lesson to be drawn was that the inhibitory property of fluorine was of rather short duration. At first sight it might seem that caries was inhibited by nearly 50%, but actually the effect was only to postpone the onset of caries for from three to five years. A question which might be put was that if the incidence of dental caries at certain ages in South Shields was so much less than in North Shields, and dental disease was inimical to health, was there any evidence that the South Shields child population was healthier than

that of North Shields? There was no striking difference between the two towns in this respect, and it was evident that only a limited beneficial effect might be expected from fluorine in drinking-water.

Something must be said about the possibility of fluorine doing harm. A good deal had been written about the toxicology of fluorine, in particular that it caused hypercalcification of bone, and that in fluorine districts goitre was specially prevalent, though he had not found this in north-east Durham. There was no doubt that fluorine was a toxic substance and would do harm if taken in considerable quantities, but there was no evidence that, apart from the unsightly appearance of the teeth, there would be any ill effect from the prolonged ingestion of water containing not excessive amounts of fluorine.

Was the effect produced during the pre-eruptive or the post-eruptive life of the teeth? Would the incorporation in the forming enamel of quite a small amount of fluorine render the enamel more resistant to caries? Laboratory experiments had been carried out, but it was doubtful whether reliable conclusions could be drawn from experiments *in vitro*. From an examination of several hundreds of children he had come to the conclusion that it did not matter whether the child's residence in a fluorine area had been long or short—or, to put it in another way, so far as the six-year molars were concerned it did not seem to make any difference at what period the child had come to live in the fluorine area—provided he arrived there before the age of 6. It seemed to be essential that the child should have ingested fluorine for a period, even if only a brief one, before the eruption of the six-year molars. Children over 6 when arriving in the area appeared to derive no benefit at all so far as the protection of their six-year molars was concerned. If the fluorine conveyed any protection in the post-eruptive stage it was only during a short period following eruption. Protection was acquired during the late stage in the pre-eruptive life of the teeth, but the acquirement of such protection just after eruption could not be ruled out.

In some places in the United States and Canada fluorine was being added to drinking-water in order to study the effect on dental caries, but such a method was not one to be adopted without serious consideration, and for his own part he had never suggested that the fluorine content of drinking-water should be raised above one part in a million.

In discussion it was argued that the degree of mottling found when there was a certain amount of fluorine in the drinking-water was conditional upon the state of nutrition of the teeth. This had been shown in investigations in Italy and Morocco. Arab children in Morocco who were badly nourished showed mottling conspicuously, while French children in Morocco who drank the same water had teeth of normal appearance. Dr. Weaver pointed out, however, that there were other factors to be considered. It was not only a question of the amount of fluorine in the water but of the amount of water which was drunk.

PATHOLOGY OF RECTAL CANCER

THIRD LETTSOMIAN LECTURE

In his third and concluding Lettsomian lecture, delivered before the Medical Society of London on March 1, Dr. CUTHBERT DUKES dealt with the special problems of rectal cancer.

The records of St. Mark's Hospital, he said, proved that in rectal cancer biopsy was a trustworthy procedure. Between 1930 and 1945, 2,118 biopsies were carried out preparatory to excision of the rectum; in each case a comparison was made later between the original biopsy diagnosis and the tumour subsequently removed, and in all but 17 cases there was agreement. In 15 of the 17 the biopsy report had been "villous papilloma," whereas operation showed the growth to be carcinoma. These were all examples of a carcinoma developing in a villous papilloma, and it so happened that the biopsy fragment included only the villous portion.

Operation Specimens

Histologically rectal cancers were divided into two varieties: adenocarcinoma and colloid carcinoma, the latter term being used to describe tumours the individual cells of which were distended with mucus, giving a signet-ring appearance. If mucoid material was found only in the lumen of the acini the tumour was described as an adenocarcinoma undergoing mucoid degeneration. Adenocarcinoma was much the commoner of the two varieties, and might be subdivided according to the histological grade of malignancy into low-grade or well-differentiated tumours, average grade, and high-grade or neoplastic tumours. Tumours might be confined to the rectum, or spreading into the peri-rectal tissues. At St. Mark's a classification had been adopted which recognized four stages in the process of the disease: growth limited to the rectum; growth spreading by direct continuity into adjoining structures but not yet giving rise to lymphatic metastases; further spread with lymphatic metastases; and beyond the scope of surgical care. Judging from operation specimens the growth was still at the first stage in about 15% of cases operated on, at the second stage in 35%, and at the third stage in 50%. Success or failure in surgical treatment depended largely on the extent of lymphatic spread, and account should be taken of all possible paths of lymphatic spread when planning any operation.

The lecturer gave an account of the pioneer work of the late Ernest Miles. It was now well established that the first glands to receive metastases in rectal cancer were almost invariably those lying close to the primary tumour. After this the superior haemorrhoidal glands were usually invaded in sequence from below upwards, so that in an advanced case of cancer of the lower third or ampulla, metastases came to form an unbroken chain extending from the regional group of glands to those situated at the point of ligature of the inferior mesenteric vessels. In the upper third of the rectum and recto-sigmoid region the first direction of lymphatic spread was also upwards, and it was rare to find any metastases in glands below the primary tumour, though this might sometimes occur if the upward path of spread had been blocked. Downward spread of this character was exceedingly rare. The follow-up records at St. Mark's showed that prognosis after excision of the rectum depended very much on the extent of the lymphatic involvement. A generalization which it was easy to remember was that patients with more than five metastases rarely lived for five years.

When operation specimens of rectal cancer were dissected evidence of extensions within the haemorrhoidal veins might be found in about 15% of all cases, usually taking the form of a solid cord detectable by palpation and extending only a short distance. In most cases the growth within the veins preserved its continuity with the primary tumour, and was no more than a special form of direct local extension. It was as if the malignant tumour, having found the path of least resistance, had pushed a root-like process along the lumen of the vein. Occasionally a massive permeation of the haemorrhoidal veins accompanied by thrombosis was found. The evidence of venous spread was most often found in anaplastic varieties of carcinoma. It was present in more than 30% of tumours reported as high-grade, but in less than 3% of those of low-grade malignancy. The finding of clumps of cancer cells within one of the haemorrhoidal veins made it more likely—though did not definitely prove—that spread to the liver had occurred. There was no doubt that concealed and unsuspected hepatic metastases accounted for most of the unexplained deaths in the first year or two after excision of the rectum. But hepatic metastases might also lie dormant, causing no symptoms for five years or longer.

Choice of Operation

Surgery was still the only form of treatment which offered any hope of permanent cure in rectal cancer. Dr. Dukes discussed the operations in most general use—perineal excision and combined abdomino-perineal excision, with the recent variant, synchronous combined excision, in which two surgeons worked together, one from above and one from below. At the moment there was a revival of interest in all surgical procedures which sought to avoid a permanent colostomy and to preserve the anal sphincter.

In order to decide whether more use could be made of these restorative operations he had reviewed the pathological records of a large series of cases treated by combined excision, trying

to ascertain whether, had all the facts been known, a restorative operation might have been employed instead. Certainly some cases treated by combined excision might have been equally well treated by restorative resection so far as pathological considerations were concerned, but on the other hand pathological lesions were often present which might adversely affect the prospects of cure by restorative procedures. His own view was that the wave of enthusiasm to remove a carcinoma of the rectum or recto-sigmoid by methods which would obviate a colostomy needed to be kept in check. Only experience could show whether this new development of rectal surgery would give as satisfactory results as the older well-tried operative procedures.

End-results of Surgical Treatment

Dr. Dukes proceeded to give the end-results of surgical treatment of rectal cancer as afforded by the records of St. Mark's Hospital. About half the patients who survived the operation of excision of the rectum were alive after five years, a very satisfactory result in view of the fact that the surgeons at the hospital all adopted a bold policy towards rectal cancer and their operability rate was more than 80%. This analysis was based on 716 cases treated by radical excision between 1928 and 1941 inclusive. Only 12 of the 716 cases had not been traced for five years, and these untraced cases were regarded as having died. In these calculations no distinction had been made between deaths due to recurrence and those due to other causes. By making an estimate of patients who might be expected to have died from other causes during the five-year period, and allowing for this, an approximate figure could be arrived at for the number of patients actually "cured," namely, 53.1%. The "cure rate" figure was thus slightly more favourable than the survival rate.

Of the 716 patients, 337, or 47.1%, were alive after five years. Approximately half these patients were treated by the perineal and half by the combined operation. The five-year survival rate of patients in whom the tumour was limited to the rectum was 81.9%, and only 62.3% for those with extra-rectal spread even though no metastases were present. For cases without lymphatic metastases the rate was 68.1%, whereas for those with such metastases it was only 26.2%. The unfavourable effect of lymphatic metastases was demonstrated especially after perineal operations. For patients without lymphatic metastases the difference between the two operations was insignificant, but for those with lymphatic metastases the five-year survival rate after perineal excision was only 17.4%, whereas it was 33.3% after the combined operation. The reason for this was because metastases in the upper haemorrhoidal glands might be removed by a combined though not by a perineal excision.

The histological grading of tumours was also of value in relation to prognosis, though less easy to define. The five-year survival rate worked out approximately at 60% for low-grade, 50% for average grade, and less than 30% for high-grade or anaplastic tumours. Metastases were found with only 18.4% of tumours classified as of low-grade, but with 78.2% of those of high-grade malignancy.

What sort of life did the five-year survivors lead? Dr. Dukes said that recently he had the opportunity of visiting 100 ex-patients from St. Mark's in their homes. All of them had had the operation of excision of the rectum for cancer, some only a few months, others several years, previously. His purpose was to collect information about the management of a colostomy, but he made notes of other matters also. Nearly all the ex-patients were in good health; eight or nine were semi-invalids, only two were bedridden. Most of them were over 60 years of age, and their general health seemed as good as one would expect to find in any similar group of elderly people. Nearly all could do some sort of work, usually household duties; only five complained that they could do nothing, and only one said he wished he were dead. Most of them spoke more of the kindness and help they had received from others than of their own troubles, and all referred with great gratitude to the skill of their surgeons and the solicitude of the nursing staff. He thought it true to say that nearly all these 100 survivors were glad to be alive, and they were less handicapped by colostomy than one would have supposed.

CONSTRICTIVE PERICARDITIS

At a meeting of the Liverpool Medical Institution on Feb. 5, with Mr. BRYAN L. MCFARLAND, vice-president, in the chair, Mr. F. RONALD EDWARDS read a paper on tuberculous pericarditis and constrictive pericarditis.

Mr. Edwards said the object of his paper was to stress the relationship between tuberculosis and constrictive pericarditis. Four cases of subacute tuberculous pericarditis had been operated upon, as had six cases of chronic constrictive pericarditis which he described. In the chronic group there had been a history of pleurisy some five to twenty-five years previously, similar to that in the subacute group. He believed that cases of chronic constrictive pericarditis with calcification were the residuum of a much larger group of cases of so-called cardiac failure, some of which might have been saved by cardiac decompression. The paper was illustrated by a colour film showing the operative technique.

In the discussion which followed Mr. HUGH REID said that he preferred a postero-lateral transpleural approach to the pericardium, removing the eighth rib on the left side. This was simpler to perform, left no defect in the chest wall afterwards, and gave ample access to the ventricles and the apex of the heart. The only objection was a temporary embarrassment of respiration while the patient was being fixed on the table. Mr. Reid then showed one of his cases, a man aged 20 recently operated on at the Royal Infirmary.

Dr. T. CECIL GRAY said that anaesthesia in cases of constrictive pericarditis presented certain problems. These patients always had a poor myocardial reserve. They might also have ascites and some pleural effusion. The margin of safety was extremely small until the pericardium had been released, when the change in the patient's condition was often dramatic. This small margin of safety was well shown by the cyanosis which might occur purely through putting the patient in the lateral position for thoracotomy. Both he and Dr. Halton were very convinced of the real danger of the use of intravenous barbiturates in these cases, but in adequate dilution, for example, 2.5% thiopentone, and in small doses—of the order of 3–4 ml.—they could be used for induction. It was advisable, however, to allow the patient to breathe oxygen both before and throughout the injection. The anaesthesia was then deepened with cyclopropane and oxygen and an endotracheal tube inserted. Anaesthesia was maintained with ether in the closed circuit in preference to cyclopropane, because the latter had often been found to cause severe degrees of cardiac arrhythmia during any dissection around the heart. There was no definite contra-indication to the use of small doses of tubocurarine to aid induction and reduce the amount of anaesthetic required provided that adequate ventilation was maintained with oxygen.

Dr. E. L. RUBIN drew attention to the site of pericardial calcification which most commonly covered the under and anterior surfaces of the right ventricle and most rarely the left auricle. Neither pericardial calcification nor the absence of radiologically visible pulsation necessarily implied constriction and both were occasionally encountered in patients who were without symptoms or other signs. An exaggerated auricular impression on the oesophagus similar to that seen in mitral stenosis was sometimes encountered, due not to enlargement of the left auricle but to thickening of the pericardium.

At the same meeting Dr. GODFREY BAMBER read a paper on some defence mechanisms of the skin.

At a clinical meeting of the Medical Society of the L.C.C. Service held at Hackney Hospital on Feb. 5, Mr. J. Gillies showed cases of various renal anomalies. Dr. Cardno described a case of sixth nerve palsy in a man of 77 following low spinal analgesia with complete recovery in eleven weeks. Mr. Jameson showed four cases of tumours arising in sebaceous glands, two innocent and two malignant, and said that he considered them all examples of "Cock's peculiar tumour."

Local authorities have found it difficult to provide suitable accommodation for midwives, district nurses, and health visitors. A circular from the Ministry of Health asks that the utmost possible assistance may be given to finding suitable accommodation for them.

Correspondence

The Colleges and the Act

SIR,—The crisis which now faces British Medicine calls for high and courageous thought. The plebiscite revealed the unity of the profession, a unity which springs from a complete distrust of the absolute power given to the Minister and the conversion of Medicine into a State monopoly. The profession is convinced that in opposing service it is acting in the interests of freedom and of the public and that it is safeguarding its own precious heritage.

A situation has arisen in which the B.M.A. has had to assume leadership. Certain professional observations are, however, called for. The action of the Presidents of the three Royal Colleges in January, 1947, was a risky one and it failed in its object. It damaged the prestige of the Colleges, endangered relations between consultants and general practitioners, encouraged the Minister, and misled the Press. The B.M.A. represents primarily the general practitioners, and there has never been any doubt about their attitude to the Act. Consultant opinion was not equally well represented on the Negotiating Committee, as the Colleges are represented in their corporate capacities and not by delegation from their Fellows. In the case of the largest College—the Royal College of Surgeons of England, with some 2,600 Fellows—the President and Council did not obtain the direct views of the Fellows, and no meeting of Fellows has been held since Nov. 29, 1946. And in a crisis such as the present one the leaders must derive their moral authority from their Fellows as the B.M.A. does from the Representative Body.

The Presidents had two primary obligations to the profession: first, to make clear the principles upon which the Act was based; and secondly to give their opinion as to the importance they attached to the heritage of freedom in the practice of medicine. They did neither of these. In consequence, consultants were demoralized and slow to realize the implications of an Act which places them at the mercy of a State monopoly.

A forgetfulness of Lord Halifax's maxim that "State business is a cruel Trade: Good-nature is a Bungler in it" is one of the reasons for our present troubles. Coalition governments are maintained by hard bargaining, and in the dark days of the war a hard bargain was struck which pledged social security and implied the nationalization of medicine. The repercussions of that bargain are now evident. Such a bargain explains the similarity of the health policy of all the political parties and the schemes of the successive Health Ministers, and it also explains the unwillingness of the Presidents to give clear leadership to the profession. Doctors are responsible and reasonably well-behaved citizens, and they will not break the law if they do not agree to serve under the Act, since their deepest convictions are that the Act will be disastrous in its effect.

I have never thought the Act capable of amendment which would lead to improved medical services and medical education and yet maintain that freedom which is vital to the practice of medicine. The interests of the public and the interests of the profession both call for the repeal or abandonment of this Act. The objections in principle are to the absolute Ministerial power, the creation of monopoly, and the certainty of political control. The practical objections are also weighty. We shall never trust Mr. Bevan, and it will take many years to restore our confidence in the intentions of any Minister of Health. The Minister and the Act have destroyed our good will, so that if the Act ever operates it will be with the same material resources but with fewer medical men and without the good will and confidence which alone make medicine possible. The sick public will suffer. The capital expenditure envisaged under the Act cannot be incurred, and an economic blizzard may aggravate the disorder of the health services and bring chaos and confusion. If the Act is forced on the community against the expert advice of the doctors, then the Government must accept responsibility.

In the events leading up to the present situation many have made mistakes—the B.M.A., the Royal Colleges, the Government, but especially the politicians, who have exploited the medical services in an endeavour to attract votes. The situation calls for all available political and medical leadership. The abandonment of the present destructive Act will be a first step in construction. Both political theory and grandiose planning will have to be forsaken if they are not to disorganize medical institutions, traditions, and confidence, and if that sense of vocation is to remain in work which is as private and intimate as the care of the sick. In the *Journal* of January 18, 1947 (p. 102), I wrote: "We are members of a free and liberal profession. I want that freedom to continue as one of the freedoms of a democratic community. As healers of the sick we shall continue to give our best if free from State coercion." That is still our faith.—I am, etc.,

London, W.1. REGINALD T. PAYNE.

No Health Centres

SIR,—Mr. Bevan's irresponsibility is glaringly illustrated in a Parliamentary answer he has given me (Feb. 10), which I append (see *Journal* of Feb. 28, p. 421). It is not too much to say that the health services under the N.H.S. Act were to be provided in predominant measure by the machinery of the health centres; a glance at Section 21 of the Act proves this contention. In Mr. Bevan's own words they were to be "the key feature in the general reconstruction of the country's health services." But without any notice to the medical profession, and almost clandestinely, the Minister announced in Circular 3, 1948, on Jan. 14, that because of the building situation provision of health centres must be postponed indefinitely. Still more certain must be the indefinite postponement of any new provision of hospital accommodation, or even any attempt at restoration of the buildings destroyed at the great London hospitals by enemy action.

Circular 3, 1948, gives a further revelation of irresponsibility. In paragraph 5 the Minister shows that he is completely in the dark as to what the health centres should provide, and he proposes to set up a "special committee to gather information" as to the aim to be pursued, and he stresses the need "for intensive research and thought about the design before the new development is launched."

The provision of institutional and specialist treatment was one of the most attractive promises of the Act and indeed perhaps one of the strongest single influences in securing its passage. But the Minister in answer to me on Feb. 10 calmly informed the House that "no immediate substantial increase of the building work under the Act *has ever been promised or regarded as feasible.*" The Act is to be put into operation within the next four months in the total absence of any possibility of fulfilling undertakings whose execution depended on provisions now indefinitely postponed. In a recent broadcast widely reported Dr. Stephen Taylor, M.P. (who constantly assumes the role of mouthpiece for the Minister), gave an "absolute assurance" that the Act would come into operation on July 5 with whatever resources of staffing might then be available, even though these might not cover more than half or even a third of the population, but no suggestion was offered as to how the population not so covered is to obtain medical attention after the elimination of the existing N.H.I. services. It seems clear that the unfortunate patients not included in the half or third covered will be required to pay the full levy, even though they receive none of the benefits or services in respect of which the levy is made.—I am, etc.,

House of Commons. E. GRAHAM-LITTLE.

The Political Perspective

SIR,—As you stated in the first leading article in the *Journal* of Feb. 21 (p. 347) the result of the plebiscite has placed a heavy responsibility on the B.M.A. and especially on the forthcoming Special Representative Meeting on March 17. It is important to realize that this responsibility is of a new order, for the recent debate in Parliament has shown that the issue is now regarded very much as a political one. It is most regrettable that politics and medicine should be so mixed up as to be temporarily identified, and it is also unfortunate that, as stated in the debate, doctors are seldom good politicians. (Perhaps this is because they have learned care in diagnosis, humility in prognosis, and moderation in statement.) In order, therefore, that the matter should be seen in its political background, which should surely be present in the minds of all who

meet on March 17, I should like to recapitulate some recent events which in their sequence and consequence seem to throw some light on the political perspective.

Towards the end of last year it was being rumoured that Britain's place in the Marshall queue might be very low, alarmingly so if the present Socialist policy were to be completed. It was therefore essential to make a bid for a higher place, and this was done by Mr. Attlee's speech on Jan. 3 roundly condemning Communism and emphasizing freedom, thereby pleasing America but disgruntling his left-wing supporters. These needed to be placated if the façade of harmony were to be maintained, so the device, unique in our history, of giving a vote of confidence to a Minister who had not been attacked was devised. The plebiscite was made the occasion for this demonstration of confidence in Mr. Bevan, the leader of the left-wingers, and careful reading of *Hansard* shows how successfully and exactly it was carried out, with a mastery of technique to satisfy Hitler himself.

Parliament was asked to say that it was "satisfied that the conditions under which all the professions concerned are invited to participate are generous and fully in accord with their traditional freedom and dignity"—when in fact the financial conditions for consultants, etc., are unknown, so that apart from a blind faith in Mr. Bevan no one could say whether they will be generous or not, while the regulations which will determine whether the conditions for most doctors are compatible with their "freedom and dignity" are also largely unknown.

Mr. Bevan, having said that "so much misrepresentation has been engaged in by the B.M.A., etc," then went on to misrepresent completely his discussions with the Negotiating Committee for the past year, for no one could gather from his speech that this time the "Negotiating Committee" had no power to negotiate but only to discuss and report back. This misrepresentation obviously convinced many members of the unreasonableness and intransigence of the doctors and coloured the whole debate.

The crowning achievement was of course to represent "the will of Parliament" as supreme not merely in matters of administration but in the sphere of morals and conscience as well (more will be heard of this later). This occurred because most of the members could not discern behind the specific objections of the Negotiating Committee the issue of professional freedom and duty to one's patients.

While doctors are not free from blame in this result, the debate made it clear that this Parliament is not versed in the art of discussing freedom in the dialectic of finance and regulations and was genuinely bewildered by the ostensible purpose of the debate, but it was a brilliant success in soft-soaping Mr. Bevan and his followers and in sweetening the bitter pill they were to swallow the next day when the Government issued the White Paper on the stabilization of wages, etc. All this goes to show how carefully the matter was timed and what importance the Government attached to making the doctors into a whipping-boy to please their extremists. No one can say that it bodes any good for the projected Health Service, either patients or employees, but it does emphasize the extreme seriousness with which we should meet on the 17th and the need to weigh even more carefully than usual what we say and the way we vote.

In the leading article in the *Journal* of Feb. 28 you stress the importance of public opinion, so I trust that this time the proceedings of the S.R.M. will be in public and that speakers will use the opportunity to make crystal clear to the wider public exactly what it is we are fighting for—how easy to say and to intend, but how difficult to do!—for at present public opinion is as confused and ill-informed as was Parliament a few weeks ago. We must emphasize the danger to clinical freedom, development, and research inherent in the Treasury control that the Act lays down for the Service, and show what it may mean for our patients. Enough is already known of some regulations to show what a mockery they may make of Mr. Bevan's promises about clinical freedom and doctor-patient relationship.

One would think that the dangers of a monopoly are already sufficiently known, or at least professed, to need no stressing, but this is not so. In fact most people seem to be unaware that the struggle between the doctors and the Act is really the old attempt to maintain freedom in an ordered service, only this time it will touch every individual in the most intimate parts of their physical, mental, and even moral existence. So far no satisfactory solution of this difficult problem has been found, but few solutions are so obviously bad as that proposed in the Act, which gives almost absolute power to the Minister and trusts that his promises of freedom (which the Treasury has power to nullify) will be kept.

Even if Mr. Bevan does his best, it is obvious that the Act is an instrument ideally formed for a dictator, and if the doctors accept it as it is they will have taken a long step for themselves and for their patients on the road that leads to Prague, or perhaps it will be Helsinki by this time next week. I believe that this is the crucial issue, and if we can make the people see it I have no doubt as to what their opinion will be, and even Parliament may have to admit that "the will of Parliament" ought to express the will of the people, as it certainly ought to seek their good, which is after all what we doctors exist to defend and to serve.—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

The Paternal State

SIR,—Dr. G. C. Pether (Feb. 28, p. 411) has raised the important question of the potentially deleterious effects of undue control by the State and extensive plans for "social security" on the development of the individual personality. It is not altogether true, however, that "psychologists have paid so little attention to the cramping and thwarting of personality" inherent in such trends. On the contrary, there has been for many years among eminent psychologists and psychiatrists a remarkable consensus of opinion as to the psychological significance and dangers of an over-protective and authoritarian "paternal" State, and as to the relationship between emotional and social maturity of the individual and a liberal democratic form of society.

The conclusions reached as early as 1921 by J. C. Flugel in *The Psycho-Analytic Study of the Family* (London) to-day seem as prophetic as they are relevant:

> It is fairly clear that there exists a tendency to resurrect some of the parental attributes and give them a political application by bestowing them upon the State. The world war has taught us the necessity of implicit obedience to the State and its representatives—military and civil; the right of independent thought, action and criticism being to a large extent suspended and the minute details of our lives being subject to order and inspection in much the same way as in our childhood they were subject to the supervision of our parents. Again, modern socialistic thought—especially in its cruder aspects—has produced a state of mind, as a result of which the individual becomes to a large extent absolved from the responsibility for his own education, progress, and maintenance, and for those of his children. The adult individual is thus led to transfer on to the State that attitude of dependence which he originally adopted in relation to his parents. . . . If our conclusions are correct, there is a danger in too wide a ramification of State provision and State control, inasmuch as it is liable to prevent that full development of individual power, initiative and self-reliance which can only be obtained by a high degree of emancipation from the primitive attitude of dependence on the parents.

F. Alexander in *Our Age of Unreason* (1942, Philadelphia) similarly states:

> Democracy must educate its members to emotional maturity if it is to survive, and psychiatry must help to develop educational methods for overcoming infantile dependence and developing responsibility.

O. H. Mowrer (*J. Soc. Psychol.*, 1939, **10**, 121) writes:

> Modern fascism springs from psychological roots which are as old as the human family and which are by no means confined to the populace of those countries in which fascism has gained official status. The danger of emergence and growth of such a political doctrine, with its emphasis upon subservience and blind submission . . . comes, not from propaganda and pressures from outside, but from a country's own internal educational and economic institutions. No one, I believe, can at present point with certainty to the solution of this important problem; but surely encouragement of greater independence and emotional self-sufficiency in children . . . is a step in the right direction.

It would appear then that superficial methods of education designed to mass-produce men and women according to a preconceived "average" pattern, or which would regard all

children as identical or potentially "equal" in their capacities, should be avoided at all cost if we wish to preserve our democratic way of life. On the basis of his study of human constitutional types W. H. Sheldon (*The Varieties of Human Physique*, 1940. New York) was led to the conclusion that "children of different constitutional components probably need different educational influences, just as trees which lean in different directions need to be supported from different angles." This "differential education," as he termed it, necessitates the conception of education as "an effort to discover and develop the peculiar potentialities of the individual, more or less regardless of the immediate social value of the emerging traits. The assumption is that the aim of life is not social adaptation and conformity, but maximum individual development."

Finally, one of the most profound thinkers of modern times and one who has made invaluable contributions to psychiatry, C. G. Jung, in his *Essays on Contemporary Events* (1947, London) has recently written :

> The parental imagos can now be projected on to the State as the universal provider and the authority determining all thinking and willing. . . . The natural development of the soul is no longer replaced by a spiritual order of direction which bridges the centuries and keeps cultural values alive, but by a political directing order which serves the power aim of particular groups and promises the masses economic benefits. In this way the deeply rooted urge of the European towards a patriarchal and hierarchical order finds an apt and concrete expression which corresponds only too well to the instincts of the masses, but which is fixed at such a level as to be in every respect detrimental to culture. . . . It is perhaps a humiliating sign of the spiritual immaturity of European man that he both needs and desires rather a large measure of authority. . . . Anyone who sets out to bring *everything* that wants to grow to the highest pitch of growth would soon find that the weeds, which always flourish best, had shot above his head. I therefore consider it the highest task of psychotherapy to-day to pursue with singleness of purpose the goal of the development of the individual.

It is of course recognized that a basic standard of social and economic security is essential for the emotional maturation of the individual to be possible. But it would seem from all the evidence available that it is only by educating the individual to initiative, self-reliance, and independence, giving him the opportunity to improve his own and his family's condition *through his own efforts*, and insisting that he should, in so far as his capacities permit, take upon himself the burden of his responsibilities as an adult that there can be any hope of giving rise to well-adjusted and mature personalities and a lasting and significant culture. In the face of contemporary events and ideological trends, it would be difficult indeed to find place for any such hope outside the realm of fantasy.—I am, etc.,

London, S.W.3. R. H. AHRENFELDT.

Censorship of Opinion

SIR,—The Council of the Society of Medical Officers of Health at its last meeting discussed the statement in your leading article entitled "Censorship" (Jan. 31, p. 202) that a county medical officer of health recently instructed the public health medical officers on his staff not to take part or vote in a meeting held in their area to discuss the National Health Service Act, and that these officers who were present had to sit in enforced silence. It was the unanimous view of the Society's Council, which includes medical officers of health and departmental medical officers from all types of local authorities, that the procedure mentioned above was neither proper nor permissible for the administrative chief of a public health department, and they wished me to express their disclaimer of any support for this alleged restriction on the freedom of opinion of colleagues.—I am, etc.,

GEORGE F. BUCHAN,
Chairman of Council,
London, W.C.1. Society of Medical Officers of Health.

The Northern Ireland Act

SIR,—As there appears to be some misconception concerning the provisions of the Northern Ireland Health Service Act in respect of the sale of medical practices, may I through your columns make it clear that the Act contains in Section 7 the same prohibition as the English Act against the sale of medical practices on the part of doctors who take service under the scheme. The Act also contains provisions for the compensation of doctors who come into the scheme on the appointed day and thus lose the right to sell the goodwill of their practices. These provisions have been inserted in agreement with the representatives of the medical profession in Northern Ireland, the negotiations having been conducted with the Northern Ireland Branch of the British Medical Association.—I am, etc.,

London, S.W.1. W. BROOKE PURDON.

*** It may be useful to summarize the main features of the Northern Ireland Act. The hospitals will not lose their endowments; there is a right of appeal to the courts; the capitation method of remunerating general practitioners is laid down in the Act; there are no penal clauses; there is no negative direction or control. The doctors agreed to the abolition of buying and selling on the understanding that if this provision were removed from the English Act a similar course would be taken in Northern Ireland.—ED., *B.M.J.*

The Fight for Freedom

SIR,—It was with a deep and sincere feeling of elation that I read the letter by Dr. A. C. E. Breach (Feb. 28, p. 412). I fully agree with him that the medical profession is surely now the last and only hope of true freedom. We must be ready and willing to fight, not just for ourselves against a dangerous Parliamentary Act, but we now have to regard ourselves as "commandoes of the public." If we fail in our fight, and we can only fail through cowardice and personal greed, we will be regarded by the public as a "very poor lot," whereas if we are the first in this country to take up our positions against tyranny not only will we ourselves feel happy in doing what is our honourable duty, but truly it may be said many years hence, "The doctors showed the British people strength, honour, and the road of the way back to greatness, and the British people took that road, and when they eventually rested they were indeed great."—I am, etc.,

Liverpool. A. E. BERNSTIEN.

Association of Rural General Practitioners

SIR,—I should like to support Dr. O. F. Conoley's letter (Feb. 7, p. 273) on rural mileage and practice expenses under any new Service. Living five miles from the nearest small town and eleven from any big town, one is forced to keep two cars. As both are nine years old they take turns in being repaired. Up till now, private practice has paid for purchase and upkeep; panel mileage allowance has covered merely tax and insurance of one car, therefore panel patients are almost entirely subsidized by private ones.

Something should be done about the initial two-mile limit before payment of any allowance. Ten roads radiate from my village. I can easily do forty miles in any morning, seeing ten panel patients at the two-mile limit on each road, and get precisely nothing for my travelling expenses. When private practice no longer exists that is just what will happen.—I am, etc.,

Kemerton, Glos. D. M. WILKINSON.

Radical Alteration Required

SIR,—It is time for a wider recognition of the fact that the present National Health Service Act is not directed to medical reform but to political ends and to bureaucratic expediency. For if the Government had been actuated solely by the desire to improve the medical services of the country another and more effective plan, easier to draft and to apply, and less subversive of the good features of English medicine, would have been produced. Men of good will, in whatever Party they may be found, should combine with the profession (which alone has so far shown good will) to urge upon the Government the desirability of a radical alteration of the Act. Nothing less will secure a contented profession and, through it, a satisfied public. For it is upon the freedom of medicine that many of the advances in the past have been built, and there is no reason to suppose that the revolution in progress at present will effect any change in that respect.

Failing the complete redrafting of the Act, which was passed by a Parliament inadequately advised by the profession, there are certain amendments which, if made, could go a long way to preserving the freedom which we, as doctors, regard as essential.

1. A previous letter in the *Journal* has shown the way in which the objectionable "universal basic salary" could be made harmless by converting it into an expenses allowance.

2. The ban on the sale and purchase of practices could easily be replaced by a State power to buy practices, or shares in practices, at their market value when vacancies occur. By this means there would be no bar to the entry into practice of any man who could not afford to purchase one, for the State would buy his practice for him and install him as the tenant. The transfer of goodwill of practices to the State would thus be a gradual process instead of the upheaval that the Act demands. This method would also remove the offensive "big stick" of the restrictions on payment of compensation with which the present Minister hopes to bludgeon the profession into acceptance.

3. Mr. Bevan is in error in saying that the recent law allowing the right to sue the Crown will provide all the appeal against a Ministerial decision of dismissal that the profession could require. Mr. Bevan in the House made great play with the fact that the doctor would have the right of appeal against *unlawful* dismissal. Maybe, but the profession requires the right of appeal against *unfair* dismissal.

4. The right of the profession to put its elected representatives upon all the governing bodies of the Service could well be conceded without harm to Ministerial control and with enormous advantage to the Service. As at present planned, the Service will be run by the Minister, the Civil Servant, the administrative medical officer, and the local authority; the last person to have any power will be the doctor, who actually does the work.

—I am, etc.,

Portsmouth. NIGEL CRIDLAND.

Some Alternative Suggestions

SIR,—In your leading article of Feb. 28 (p. 397) you state: "The medical profession and the Minister of Health have one important end in common and that is to provide an efficient medical service for the people of this country." You then continue to write about the adjustments necessary to the Act in its present form. These two statements are irreconcilable, as no adjustments of the Act can possibly improve the service of medicine to the public, although they may mitigate several potential dangers. The Act as it now stands sets out to do two things. One is to provide a "free" service, and the other is to control the profession. I cannot believe that there was any intention to try and improve the service of medicine or it would surely have shown itself somewhere. Yet if a great reform of this kind is initiated it should have as its basis an aspiration to improvement in all its spheres.

What are the hindrances which are holding back the profession? They are first the fact that all G.P.s are grossly overworked and cannot give the time they would like to each patient, and secondly that out-patient and in-patient accommodation in hospitals is seriously inadequate. The latter is a question of building and of nurses rather than of medical staffing and cannot be solved in the immediate future, but could be alleviated if the former were rectified. If G.P.s' surgeries were not so crowded, then it is possible that fewer cases would find their way to the out-patient department. If G.P.s' rounds were not so rushed, then they would feel more able to cope with minor serious medical cases which otherwise would be sent into hospital.

It would therefore seem that if G.P.s' practices could be limited in size, then most of the hindrances to an efficient service would be dissolved. The number of G.P.s is approximately 20,500 and the population about 48,000,000—i.e., about 2,146 per doctor. A practice of this size should be managed efficiently and without overworking the doctor. In order to limit practices to this size it would be necessary to leave out of the scheme a certain percentage of the population, because there are the less densely populated country districts with relatively small practices, and elderly and semi-retired doctors who would not attempt to see as many patients. The obvious solution would seem to be to leave out the upper-income groups, many of whom would not in any case take advantage of the Service—say, all those with incomes above £1,000 a year. The remainder of the population would therefore come under the Health Scheme and obtain free doctoring, but as the upper income groups will have to pay for the scheme then it is only just and proper that they should obtain certain benefits from it.

These criteria could be satisfied by limiting doctors' practices either by a generous capitation fee, such as 25s. to 27s. 6d. per head with a number not to exceed 2,750, or by a staggered capitation fee, such as 30s. per head for the first 1,000, 20s. for the next 500, 15s. up to 2,000, and any further patients at 7s. 6d. per head. Confinements, mileage, and the very much reduced amount of private practice would ensure standards approximating to those recommended by the Spens Report. Those with incomes above the limit should be helped by free pathological and radiological investigations, which should be available to all G.P.s without reference to the out-patient department of the hospital.

Consultants and specialists would therefore carry on with a reduced private practice, which would entail that they should be remunerated for their hospital services. State aid to the voluntary hospitals is essential if they are to survive in this present era. If consultants and specialists were paid on a case basis, then they should not only be able to maintain their present rate of income but possibly manage to reduce their fees for private work, thereby increasing that work which otherwise would accumulate in the hospital departments.

Such a scheme would seem to have distinct advantages—namely: (1) It should provide a fillip to medicine by enabling the G.P. to work well without overworking; (2) it would satisfy all income groups of the public; (3) it would dilute State control by enabling a G.P. to leave the Service if he is unhappy and still be able to scratch a living outside; (4) it would help a young doctor, as his first patients would be the most remunerative and he would also benefit from the redistribution from the present bulky practices.

It does mean, of course, a new Act; and various other issues are not mentioned such as the buying and selling of practices. This custom, however, need not be insisted on, as there is no threat to the doctors' freedom. If it is to go it should be compensated for in the same way as other nationalization schemes—that is to say, by immediate reimbursement in the form of Government securities.

The scheme approximates to one produced by the Planning Committee of the B.M.A., and one possible reason it has not been elaborated may have been the desire to try for a 100% service. At the moment this ideal does not appear feasible owing to the amount of control apparently required by the State. If that control is the real object of the Government then obviously this scheme now suggested would meet with short shrift, *but* it will show that there is a scheme which could be worked efficiently—giving a better service immediately and one which could be extended as hospital accommodation is increased and health centres built.—I am, etc.,

Plymouth. S. M. DAVIDSON.

Stand Firm on Four Points

SIR,—The general public are beginning to realize that there must be something in the doctors' case, and the Press seems to think that the next move is up to the B.M.A. There are symptoms that we are expected to yield some concessions; indeed Drs. A. S. Hatch and F. H. Hunnard suggest (Feb. 28, p. 408) that we should yield on buying and selling practices and on appeal to the courts. I hope they will read and study the letter from Dr. J. Arthur Gorsky (p. 410), and also C. K. Allen's book *Law and Orders*. If they do, I feel confident that they will modify their views.

Unless we stand firm on all our four main points—for they are all interrelated—and if we yield on even one, our whole position will be turned and our freedom gone. So many people here and abroad are watching the situation and looking to us to show once again that the people of this country can be easily led but cannot be coerced. After all, when we agree to work the Act if our four main points are guaranteed we are still making great concessions and accepting much in the Act which is against B.M.A. policy and which we heartily dislike. To mention only a few, there is the undemocratic set-up of our representation on various boards and councils, the power of the Minister to suppress reports, his taking over of the hospitals, his proposed introduction of the full service when neither the necessary personnel nor the buildings exist to make its operation to the satisfaction of the public a reasonable proposition.—I am, etc.,

Southport, Lancs. R. R. M. PORTER.

The Basic Salary

SIR,—Having now in no uncertain voice expressed our opinion of the new Health Act, we may safely, I think, venture on some constructive criticism with a view to attaining a workable compromise. Among other things I think we should take a new look at the basic salary. As at present envisaged it is a mere bond of servitude and has rightly been turned down as unworthy of a great profession for whom freedom is vital.

But need it be so? Why should it not become a reward for good service and incentive to better work? Instead of being a fixed sum it could be varied so that the man with experience would have a larger amount than the recently qualified, the man with a higher degree would be rewarded accordingly, and the

man in a difficult and sparsely populated area would be compensated in proportion. By increasing, say, every five years, it would give promotion in the Service. The man with higher degrees does not necessarily become of consultant status but should certainly be given some acknowledgment. In other words the basic salary, instead of making for mediocrity, could encourage progress and good work. Provided, therefore, that we can be assured that the basic salary does not lead to a whole-time State service, there seems to be much to be said for it, and we should not lightly turn it down without due consideration.—I am, etc.,

Askern, nr. Doncaster. JOHN MALLOCH.

Inequality of Income

SIR,—Almost every letter in the *Journal* is concerned with the moral issues involved in the N.H.S., but its financial clauses are left largely uncriticized. Splendid and laudable that it should be so! But most of us have to earn our living and must meet our obligations. In studying this less exalted point of view I have been impressed by the fact that financial injustice of the first magnitude appears to be inherent in the scheme as it is now proposed. Equality of remuneration, an equal charge for every patient on the doctor's list, will surely result in a grave inequality in the net receipts of practice. Thus, Dr. A works in a poor neighbourhood with "overheads" between £100 and £200 a year, his patients expecting a very few minutes of his time at each attendance (the N.H.I. has taught them to be content with that). But Dr. B, in better-class practice, may find his "overheads" three or four times as costly, while those who consult him will demand their quarter of an hour. A will do well; B will go bankrupt, unless he negatively directs himself to squat in A's fruitful field.

I raised this point at a meeting of a medical (or medico-political?) society which does not see eye to eye with the B.M.A. and was told that the matter would be of no importance in the Best of all Possible Worlds which is on its way. Dr. B would find cheap accommodation in a neighbouring slum, and if he wasted much time on individual patients others could soon be found who would not.—I am, etc.,

London, W.1. G. LAUGHTON SCOTT.

The Political Aspect

SIR,—In view of the fact that the Northern Ireland Parliament readily compromised with the doctors there, conceding the more important of their requirements, and that no prominence has been given to this in any section of the Press irrespective of its political colour, it would appear as though neither the Socialist Party, the Opposition, nor Mr. Bevan really wish the matter settled. This impression is strengthened by the recent debate in the House of Commons, which apart from a certain "entertainment value" was in no way helpful.

Should this controversy reach its logical and inevitable conclusion it would in no way damage the Opposition, while the Socialist Party might find it less embarrassing to postpone the enforcement of the Act, putting the responsibility for this on the medical profession, than having to explain to "organized labour" that the additional reduction in their pay packets is for future benefits, which cannot be provided at present. As for Mr. Bevan's motives, we have here a clever and ambitious man—but perhaps my imagination is too fertile.—I am, etc.,

Wallingford, Berks. GEO. MCMULLAN.

Doctors who Might

SIR,—The plebiscite is completed, the considered desires of the Minister and of the profession are known, and the popular cry appears to be "let battle commence." But nothing could be more unwise than to engage forces without estimating the numerical strength of the enemy. Mr. Bevan states that he is determined to commence the Service on July 5, and the question is, Has he enough to do it; how many are on his side? Let us then consider how many Mr. Bevan can call upon. These fall into four groups, the last two of which have not received sufficient attention from the B.M.A.

(1) There are those doctors who are revealed by the plebiscite as willing to join the Service.

(2) There are those doctors outside England who are not revealed by the plebiscite but are more than willing to join the Service.

The numerical strengths of these first two groups are not difficult to estimate and are sufficiently appreciated by all.

(3) There is the potential "Fifth Column" in our midst. Among those sincerely determined to refuse service under the Act there is a large group of young doctors who for financial reasons are open to economic coercion, a weapon not unknown to a certain type of politician. For example, of the thousands of doctors released from the Forces very few are earning their living at present. While under normal conditions the majority would have been absorbed into general practice, very few have been able to do so because practitioners have been naturally disinclined to accept partners owing to uncertainties based upon the proposed Service. As a result thousands of young doctors are "studying for higher degrees" and are being paid for doing so by various bodies such as the Post-graduate Federation. It is within the power of the Government to stop such payments, and these doctors wonder how long they can hold out without any money. Some have written to the various authorities requesting assurance that they will not be dismissed on July 5, but thanks to the Minister such assurance cannot be given. These doctors inadvertently constitute a potential fifth column: they number thousands. While some are determined not to join even if they have to temporarily give up medicine and work on farms, others openly admit that against their consciences they will be forced to join the Service unless some financial aid is assured them. It is probable that Mr. Bevan is well aware of the existence of the potential fifth column and of its value to his cause, and it is more than possible that its existence is not entirely accidental. The B.M.A. should now turn its attention to the danger and ensure that such doctors will not join the enemy through economic coercion.

(4) There is the public. All doctors agree that the wish of the people is paramount. Mr. Bevan states that he represents the wish of the people, but in point of fact the people have never been consulted. Furthermore, they have been misled by the politicians who have repeatedly told them they will have a "free service," and even this elementary falsehood is naturally accepted by the man-in-the-street, who is always anxious for something for nothing. By a series of equally misleading statements Mr. Bevan has got many of the public on his side. If, however, the public were told the truth about the Service they would think otherwise, and since all doctors wish to do what the public desires (in contradistinction to what Mr. Bevan says they desire) there the duty of the B.M.A. is clearly twofold. First, the B.M.A. should tell the public the truth about the projected Service. Secondly, they should then ascertain the considered wishes of the people by a survey of mass opinion and make the result known to everybody. If the public is with us it should silence Mr. Bevan. If it is against us the "battle" is over before the first shot is fired.

—I am etc.,

Sutton Green, Surrey. JAMES T. HAROLD.

Ownership

SIR,—Judging by recent letters in the *B.M.J.* much confusion still exists on the all-important question of ownership of practice. One could safely say that if there was any general factor responsible for the majority "No" vote it was fear of a salaried State service with its attendant loss of freedom, and if this assumption is correct then it is imperative that the profession is emphatic in retaining ownership. It will clarify the cause if we consider it from various points of view.

The Government.—Socialist criteria for the necessity of nationalization are briefly (*a*) inefficiency, (*b*) exploitation. What increase of efficiency is to be expected by reason of buying out practice, and who is being exploited by the sale and purchase of practice? Many sincere Socialists have stated that the usual criteria simply do not apply to the practice of medicine. Why then does the Government risk wrecking the scheme on this point? It is because (and this applies to any government whatever its politics) the Treasury must call the tune through control of certification, etc.; it must have a tidy scheme. The Minister recognizes much more clearly than many doctors that if we accept compensation we must accept control. His reasoning on this point is logical and fair.

The Public and Press.—I am of the opinion that the public are not the slightest bit concerned about the financial transactions in the Act, and rightly so, but I am quite certain that if we go to the public and Press in sincerity of purpose and, most important of all, in unity we will have their support. The result of the plebiscite has won us tremendous support, and therefore let us make it quite clear why we voted.

The Profession.—Of the minority that voted "Yes" I have nothing to say, but there are many in the profession who state that they are against the Act in every way but they cannot afford

to lose compensation. It is beyond my simple understanding to appreciate that people exist who imagine they can accept compensation and still continue to enjoy the freedom of medicine as at present. The price of compensation is control—a fair bargain if we accept it. It would be better if these "wafflers" stated outright that compensation relieved their moral fears and voted "Yes" to the Act now. If the Minister wins his battle of nerves it can only be through this section of the profession. Can anyone seriously doubt who will eventually win if 80% of the profession say "No"? We can scarcely expect the public to support this "have our cake and eat it" policy of this section of the profession. I cannot think of nor have I read of any substitute for the ownership of practice that can safeguard us, and it is for the profession to face this issue of compensation or control now lest we lose the confidence of our patients and the key to our freedom.—I am, etc.,

Sheffield. ANDREW STEPHEN.

Protection of Doctor and Patient

SIR,—The profession, having denounced in no uncertain manner in the plebiscite the N.H.S. Act as at present constituted, it appears to me to be very desirable that they should formulate conditions under which they would be willing to participate in a scheme, the granting of such conditions being considered as a *sine qua non* by the profession before acceptance.

I enumerate below what in the light of 28 years' experience appear to me to be very necessary conditions for the protection both of patient and doctor in any State scheme.

(1) The right of a doctor to retain the goodwill of his own practice and to dispose of it as he thinks fit.

(2) No outside interference with the doctor-patient relationship.

(3) The right of any patient to change his or her doctor, and the right of any doctor to have a patient removed from his list.

(4) No increase in free certification beyond the limits imposed in the present N.H.I. regulations.

(5) The retention by practitioners of their present panel lists after July, and the addition to these lists of patients desiring to join the State scheme. This is a most important provision in order to maintain continuity of income for the doctor, who otherwise will suffer serious financial loss whether he participates or not.

(6) The right of any patient to be treated privately by their own or any other doctor if they so desire it, with adequate safeguards.

(7) The right of a doctor to appeal to an independent tribunal in case of dismissal from the Service.

There may be other very necessary conditions of service which may occur to others, but those enumerated above appear essential conditions to me.—I am, etc.,

Atherton, Manchester. K. V. DEAKIN.

Concessions

SIR,—We, three interested general practitioners, have followed the present Health Service controversy as far as we are able both in the medical and lay press. We are puzzled by one point. The Minister claims persistently and emphatically to have made concessions to the profession. We can only list two: (1) the granting of private beds in hospitals to the consultants; (2) the setting up of a legal commission on partnerships. Of these two moves the first is suspect as an attempt to split the ranks of the profession; the second was only made after all negotiation had broken down. This can hardly rank as an effort of conciliation, but rather as a propaganda point for Parliament and the public.

Are we wrong in believing that all the alterations suggested by the B.M.A. have been granted by the Ulster Parliament and incorporated in an otherwise identical health service in that country? If this be correct surely it is a point that could be made widely public. It would show that at least one body of responsible people consider our suggestions reasonable.—We are, etc.,

IDA M. WILL.
J. H. FRANCIS.
R. A FURNISS.

Nottingham.

*** Right of appeal to the Supreme Court, absence of powers of direction, and remuneration by capitation fee only are all incorporated in the Northern Ireland Act. The Bill was discussed in a leading article in our issue of Sept. 20, 1947 (p. 459).—ED., *B.M.J.*

Retain Goodwill

SIR—Notwithstanding the plebiscite results, I view the present situation with grave apprehension. The most disquieting aspect is the negative attitude of the Conservative Press and Party. They both seem to have overlooked the fundamental differences between ourselves and Mr. Bevan and to consider that a little give and take on both sides will settle the matter. My own gravest fear has been that the Minister would say to us: "You are now asking for three major concessions; I am prepared to grant you two if you will meet me on the third. You shall have no basic salary, you shall have an appeal to the courts, and I shall buy your practices." To my horror a letter in *The Times* from our respected leader Lord Horder appeared to me to lead up to the same solution. Lord Horder laid far too much stress on the appeal to the courts and basic salary and scarcely any on the purchase and sale of practices. Possibly as a consultant he does not fully realize what ownership of our practices means to us G.P.s.

Obviously somebody will have to give way on some points before July 5, and my own opinion is that we should be wise as a profession to concentrate on the one issue of retention of the goodwill of our practices. If we give way on this one point we shall have lost the battle and opened the gates for totalitarianism and even eventual Communism. I regard the issue as a battle between Hippocrates and Marx.

The B.M.A. has done wonderfully well in conducting this campaign, but the real battle is only just beginning. Against us we have all the forces of the Left deployed with cunning and craft, which may well divide our ranks unless we can stand firmly together. From careful observations I personally suspect that there are quite a few chicken-hearted doctors who may "rat" on us, not because they like the Act but because they fear financial sanctions from Whitehall. If we accept the absence of appeal to the courts and the basic salary we may not get our ideal, but we shall still be owners of our own practices, "master of our soul and captain of our fate." As somebody has got to compromise, let us instruct our B.M.A. representatives to fight to the bitter end to retain our own practices but to be prepared to give way on the other two points.

We can expect no help from the Conservative Party on this issue. They are themselves tainted with the virus of bureaucratic control, and if we fail to agree on this one issue we shall, as I personally view the situation, have lost the fight and signed ourselves up for serfdom, a fate which we shall richly deserve as an educated and liberal profession, because we have not the excuse of ignorance. A study of European (particularly German) history during the last decade shows clearly how a State medical service is the essential step towards securing full control of the workers; it also helps one to realize why Mr. Bevan is so keen to get our practices.

To summarize: the State Service is coming anyhow; if we can retain our ownership of our practices we can retain our independence and try and make the best of it. If we give in on this one point we are sunk and lost for ever; no regrets afterwards will be of any avail. Let us not then bother too much about public and political opinion. We as a profession have expressed our honest sincere opinion of the Act, and we are the only people on this earth who know how to run a successful medical service for Great Britain—it happens to be our own special job. We shall never unite on all three basic principles; let us throw overboard the two that don't matter *vitally* and stick to the third one, which means professional life or death.—I am, etc.,

Holcombe Rogus, Somerset. JOHN V. MAINPRISE.

The French System

SIR,—It is with some trepidation that I enter the arena of the N.H.S. controversy. It is unfortunate, if inevitable, that the translation of our principles into practical issues should revolve around ways and means of remuneration. I feel the solution does not rest with capitation fee (with or without basic salary) but with remuneration per item of service. I believe we could with advantage study the system which works satisfactorily in France to-day. As far as the general practitioner is concerned this is in outline how the system works.

Agreements are made between the regional medical unions and the regional social security headquarters concerning minimum fees for various items of service—consultation at surgery, domiciliary

visit (day, night, Sundays), and minor operations. The patient pays his doctor, who initials a receipt provided by the social security organization. The fee is later refunded minus 20%.

The advantages of this system are many and amply compensate the slightly more complicated administrative machine which is needed. (*a*) The patient has complete freedom to choose or change his doctor. (*b*) The doctor-patient relationship is preserved, as the State enters into a contract with the patient and not with the doctor. (*c*) The doctor is not called out for trivial complaints, as the patient must pay out of his own pocket one-fifth of the fee. (*d*) The more experienced doctor or the older physician may raise his fees (within accepted limits) to lessen the burden of his practice.

This system works well, and I have no doubt a similar system could be devised to meet our needs.—I am, etc.,

London, N.W.3 J. DELAFRESNAYE.

Implement the Plebiscite

SIR,—At a local general meeting of the profession convened on March 7 to consider the resolutions proposed by the B.M.A. Council at the next Special Representative Meeting I proposed the following resolution, supported by one of my seniors:

That after consideration of the plebiscite result the Representative Body recommends the profession not to take any action to implement the Health Acts of 1946 and 1947 until they have been amended to meet the demands of the profession.

While it was received sympathetically, it was rejected. The first resolution of the Council was passed by a large majority, a minority not voting.

I would like to know how the Council and the supporters of their first resolution defend it in the light of what we have learnt about the Health Acts. We know that they are a political measure, the main purpose of which is to centralize the control of certification in the hands of the Government, that they are the last link in a chain being forged, not by any one political party, which will have as its effect the delimitation of individual freedom. We know that the Government is determined to carry out its policy. We know that our previous effort to meet the Government has given us nothing, not even the sympathy of the public. We know that we have an overwhelming majority in the profession who disapprove of the Acts. I would suggest that a mandate placed in the hands of the B.M.A. Council is the logical consequence of such a position.

"Criticism" that such a resolution as mine is derived from aggressive tendencies may well be a description of psychoanalytical fact, and in that it is mere description—it is not to the point. The B.M.A. is a democratic institution, where it is for the members to make clear to the Council what is to be the policy of that Association. The first resolution of the Council is not a statement of policy but merely a hope and an opinion. At this meeting the Council were not given any line of policy to enact the results of the plebiscite.

Especially as there are at least a minority who share these views I venture to record them, and would like the Council and their supporters to take this matter up and explain the idea behind their first resolution. Failure to implement the plebiscite will result in the disintegration of our majority if the profession have voted with decision to maintain one of the last bastions of freedom.—I am, etc.,

Hull. GEORGE H. BLAIR.

Benefits for Doctors' Wives

SIR,—I have read with interest and some sympathy of the formation of a League of Doctors' Wives. I feel, however, that having made public its activities in the national press the League may lay itself open to charges of misrepresentation of facts if it paints a picture of unrelieved gloom, and so I wish to draw attention to a few shafts of light in the form of State concessions that we have enjoyed up till now and which we may surely expect will continue after the appointed day.

(*a*) Throughout the war period my maid of military age was allowed to remain in our service with the reasonable proviso that she played her part in civil defence (in her case, joining a fire-watching party). (*b*) Income tax allowance is granted for that part of her services employed in connexion with the practice. (*c*) Doctors have been permitted to use their cars for recreation (subject to reasonable conditions) and their wives can enjoy with them this great advantage.—I am, etc.,

GLADYS M. WOOLF.

Symmetrical Gangrene in the African

SIR,—We have read with great interest Dr. M. Gelfand's excellent article on symmetrical gangrene in the African (June 14, 1947, p. 847). The possibility arises that the disease may have a similar aetiology to the epidemic thrombophlebitis described by us[1] in the East African Command during the War. The following are points of resemblance:

1. Dr. Gelfand's six patients were seen during the same period as our cases in Kenya and Somaliland.
2. The age and sex incidence was similar (he only saw the disease in males, usually between the ages of 20 and 35).
3. Oedema preceded the gangrene in all his cases. Many of our patients suffered from oedema without evident thrombophlebitis, although the pathology of these and of the cases of obvious phlebitis was undoubtedly identical.
4. Two of our patients developed gangrene of the lower limb, arterial thrombosis being found at operation. Both cases presented as thrombophlebitis with oedema, which was later complicated by arteritis.
5. Most of our cases were preceded by venepuncture. One of Dr. Gelfand's patients had received injections of quinine for cerebral malaria, but the route of administration is not stated. The Wassermann reaction was positive in two of his cases. It is possible that these patients may have received anti-syphilitic treatment at some previous date.

The symmetrical character of Dr. Gelfand's cases is not incompatible with our theory, for 29% of our cases of thrombophlebitis involved both lower limbs. Had arteritis been a more frequent complication it is likely that gangrene would have been bilateral in a similar ratio. Is it not possible that mild thrombophlebitis was more widespread in Southern Rhodesia than appeared from hospital admission? An African in civilian life would probably fail to report for treatment of a mild, perhaps transient, attack of oedema of the leg. It would be surprising if a disease which was attacking so many East African troops in Kenya and Somaliland did not affect a proportion of Africans in civilian life. Fisher and Lendrum[2] describe tropical primary phlebitis in the neighbouring territory of Northern Rhodesia.—We are, etc.,

A. D. CHARTERS.
London, W.1. P. E. C. MANSON-BAHR.

REFERENCES

1 *Lancet*, 1946, **2**, 333.
2 Ibid., 1946, **2**, 438.

Exo-erythrocytic Forms of Malaria Parasite

SIR,—In the paper on the "Pre-erythrocytic Stage of Mammalian Malaria" by Drs. H. E. Shortt, P. C. C. Garnham, and B. Malamos (Jan. 31, p. 192) it is stated that the curtain on the gap in the cycle of events was lifted in the case of avian malaria by James and Tate in 1937, when they described the exo-erythrocytic cycle in *Plasmodium gallinaceum*. Such description had been preceded by the discovery of Raffaele of the unpigmented stages in canaries of *Plasmodium relictum*.

In the first paper of S. P. James and P. Tate (*Parasitology*, 1938, **30**, 128) it is stated that "Raffaele was the first to recognize that in *P. elongatum* there is a definite schizogonic cycle of development in cells of the reticulo-endothelial system in addition to the cycle in erythrocytes. Raffaele also demonstrated (*Riv. Malariol.*, 1936, **15**, 318) that schizogony takes place in leucocytes or endothelial cells after heavy inoculation of canaries with sporozoites of *P. relictum*. . . . Unpublished work of one of us has confirmed Raffaele's results, that endothelial schizogony of *P. relictum* occurs in canaries which have been inoculated with sporozoites." Raffaele has also shown that the exo-erythrocytic forms appear only towards the 6th and 7th day after the inoculation of sporozoites. So the priority of Raffaele's discovery in avian malaria cannot be questioned, and no less incorrect is the statement in the annotation at p. 204 of the same issue of the *Journal* in which none of the names of the researchers in this field have been omitted with the exception of Raffaele's name.

The statement in the annotation that "evidence of a convincing nature is at last brought forward that the cycle of development of the malarial parasites in mammals is exactly analogous to that occurring in birds" comes many years late, as Raffaele had already described (1937–40) bodies belonging to the exo-erythrocytic cycle in man. The authors of the paper dismiss too easily the importance

of Raffaele's findings by saying that they have not been confirmed or received any support. But it is just that negative assumption that needs support, a support that would exact a long painstaking work as was Raffaele's work.

I am sure that your readers may be surprised in learning from Davey that to succeed in finding these forms, with the same difficulties that one meets in finding them in a six-days-old chick, it would be necessary to inoculate in the human the contents of 50,000 infected salivary glands. All malariologists who took the trouble of looking at Raffaele's smears have not hesitated in considering them as belonging to the exo-erythrocytic stage. I think that the authors' findings in the monkey is a confirmation of Raffaele's work on man. By the way, owing to the authority of Raffaele in that field his observations should have been accepted.

Before finishing this letter I feel the need of reminding your readers of the high intellectual merit of James in the discovery of the exo-erythrocytic stage. Considering all the proofs against Schaudinn's theory he postulated the necessity of a new stage between the sporozoite and the infection of the red blood cells. This working hypothesis was published in its completeness by Ruge (*Dtsch. med. Wschr.*, 1936, **62**, 1869) and has been proved true by successive work. I am glad to give homage to the memory of James as the malariologist to whom the experimental malaria owes the most interesting clinical results.—I am, etc.,

Istituto di Malariologia Ettore Marchiafava, Rome. G. BASTIANELLI.

Swine Erysipelas Infection in Man

SIR,—I am interested in the concluding statement made by the president of the Section of Comparative Medicine of the Royal Society of Medicine (Feb. 28, p. 404) in which he asked whether the susceptibility of man to swine erysipelas might not be much higher than was commonly thought. Personally, I have found it comparatively common—its incidence twice as frequent as erysipelas in my practice. I meet at least two cases of the cutaneous type and sometimes as many as five of these cases in a year. I must have seen about fifty cases or more during the past eighteen years.

It is variously known as erysipeloid, crab cellulitis, or reticular lymphangitis. There is almost always a history of a scratch or minor cut from a meat bone or a skinning or butcher's knife. The infection has occurred in my cases among butchers, gamekeepers, cooks, farmers, who have been skinning dead sheep found on the hill, and not infrequently in housewives. A few have occurred from fish-bone scratches.

The condition has a seasonal incidence from August to February. It usually occurs on the finger, commencing as a purple patch, which extends over the finger, clearing in the centre and working towards the tip and the palm. There it commonly proceeds to travel down a neighbouring finger to its tip. It has a slowly spreading, sharply defined, purple, raised narrow margin. It is itchy and hot, but never really painful. On one occasion only have I seen a mild lymphangitis to the middle of the forearm. It resolved spontaneously with splinting of the parts. Suppuration never occurs. The erysipeloid undergoes spontaneous cure in about three weeks in most cases.

Until two years ago I treated these cases with 10% ichthyol ointment applied every two days on lint, knowing that it would at least do no harm. I have never seen a case relapse with this treatment although relapse is said to be common. I do not claim that the ichthyol had any particular effect on the infection, but some method of treatment had to be given to satisfy the patient. Lately I treated two cases with 200,000 units of penicillin night and morning, but abandoned it in both cases after five days as no improvement occurred. This autumn I was fortunate in having an elderly housewife with the condition, whose daughter, a nurse, administered 50,000 units of penicillin three-hourly for seven days. This case was less than a week old and too early to undergo spontaneous cure. After four days of penicillin treatment the lesion had completely disappeared, and no recurrence took place. It is obvious that ordinary massive dosage night and morning is insufficient, but 400,000 units daily by three-hourly injections effects cure in some cases. Higher dosage might of course be necessary in others.

I feel sure that swine erysipelas occurs much more frequently in man in rural areas than is commonly supposed.—I am, etc.,

Bridgend, Isle of Islay, Argyll. CAMPBELL M. MCINTYRE.

Rarer Manifestations of Herpes Zoster

SIR,—The very interesting article on this subject by Dr. T. Parkinson (Jan. 3, p. 8) is bound to recall other unusual cases of herpes zoster. I remember to have seen a sequence of cases a few years ago which struck me already at the time as extraordinary but gained even more significance after reading his article.

The first case was that of an elderly man, patient A, who was admitted to hospital with herpes zoster of typical thoracic distribution. A few days later patient B was admitted for an amputation of his toes. While recovering from it he used to visit patient A in his room. About three weeks after his admission he developed a left facial palsy which took about one year before it had disappeared entirely. Patient A was admitted again several months later for post-herpetic pain and mental depression. At that time patient C, who was being treated for a diaphragmatic hernia with ulceration, visited him on several occasions. After about a fortnight he developed a herpes zoster of typical abdominal distribution. Somewhat about the same time patient D was recovering from a haemorrhoidectomy. He too visited patient A now and then. Soon after his discharge he consulted me for a paralysis of the long thoracic nerve which had affected the serratus anterior muscle and the posterior portion of the deltoid.

These four cases are interesting inasmuch as two of them apparently were examples of "zoster sine herpete." They further seem to point to a carrier state in herpes zoster which possibly was present in patient A.

The relationship between herpes zoster and varicella was exemplified lately to me when I saw a man suffering from herpes zoster and his wife getting an attack of varicella about three weeks later.

Finally it is worth recording the case of a 6-year-old boy who had been under radium treatment for sarcoma after abdominal exploration and came to see me for a herpes zoster with a distribution corresponding with L5.—I am, etc.,

Gatton, Australia. E. GUTHANER.

Treatment of Subacute Bacterial Endocarditis

SIR,—I agree with much that Dr. Florence M. E. Davies (Feb. 14, p. 317) and Mr. B. Waters (Feb. 28, p. 416) have written on this subject. Nevertheless I do feel that the importance of infected teeth, apical granuloma, and possibly tonsils as potential sources of bacterial leakage leading to relapse has not been emphasized.

Therefore may I add that I have shown elsewhere (*Lancet*, 1947, **2**, 807) that penicillin-sensitive organisms can thrive in a dead tooth pulp in a subject receiving massive doses of penicillin.—I am, etc.,

Liverpool. JOHN HALLAM.

Breast-feeding in Erythroblastosis Foetalis

SIR,—The practice of weaning infants with haemolytic disease because the mother's milk contains antibodies has been based on circumstantial evidence and speculation on the possible harm that might result to the baby rather than on scientific proof. The question of breast-feeding erythroblastic babies is of such importance that an authoritative opinion based upon actual investigation should be welcome. Dr. I. A. B. Cathie's observations (Oct. 25, 1947, p. 650) that there is no experimental evidence to prove that Rh antibodies are demonstrably absorbed into the blood stream by way of the alimentary canal and the conclusion that weaning of such infants is not justified are therefore of great interest. It is also interesting to note that at the Hospital for Sick Children, Great Ormond Street, London, it has been the practice to breast-feed such children whenever this can be done, irrespective of the antibody content of the breast milk, and that their clinical progress has not suggested any relationship between the antibodies in the milk and the duration of the haemolytic process.

I wish to make the following comments on these observations. The finding that Rh antibodies are not readily destroyed by the gastric secretion of infants is significant, as it shows that they remain potent and may yet be absorbed from the alimentary canal. There is a fundamental difference between absorption through the placenta and from the alimentary canal. In the former, on entry into the foetal circulation the antibodies come into direct contact with the

foetal red cells which possess the specific antigen in the greatest concentration, and it is probable that most of the antibodies are specifically fixed to the red cells. Indeed the red cells may be said to constitute the first line of defence against the antibodies. In the latter, on the other hand, the antibodies have to pass through the liver, the cells of which have been shown by Boorman and Dodd (1943) to contain the Rh antigen, though not to the same extent as the erythrocytes. Is it possible that the antibodies are absorbed by the hepatic cells? If this view is correct it would seem reasonable to suppose that the antibodies can gain entrance into the circulation only after the liver cells have been more or less saturated with them.

What causes the lag in the recovery in the blood state of erythroblastic babies? Is it the haemolytic process or the hypoplasia of bone marrow, or both? The pathology of the haemolytic process in the infant may be compared with that of cases of blood transfusion from high-titre group O donors. Yet though the degree of haemolysis as judged by the fall in haemoglobin and red cell count may be severe it is but rarely attended with haemoglobinuria or evidence of renal damage such as oliguria and nitrogen retention. This is so even when Rh-positive blood has been used for transfusion. Clinically the jaundice may be minimal or there may be an increase if it was previously present. A rapidly increasing pallor is a common feature. These clinical findings suggest that the anaemia is probably also due to poor red cell regeneration rather than entirely to haemolysis.

It is well known that in animals physiological absorption of maternal antibodies via the alimentary canal is quite possible. The observations by Kerr and Robertson (1946) are of special interest in this connexion. Working with *Trichomonas foetus* antigen on cows these workers have shown that the antibodies against *Tr. foetus* present in the whey of colostrum can be absorbed by the newborn calf from the first feed after birth—and be demonstrable within 2 hours after the feed. If the calf had been fed on boiled milk for 24 hours the antibody present in the colostrum is not absorbed. This shows that the conditions in the alimentary canal which permit the passage of the antibodies disappear within the first 24 hours. These workers have also shown that *Tr. foetus* antibodies in serum can be absorbed via the alimentary canal into the blood stream in the newborn calf, though it is much less easily assimilated than from colostrum.

In this respect newborn calves and newborn babies appear to differ from each other. Parsons (1946) attributes this difference in mechanism "to the variation in placental structure; in women the placenta is thin, the blood actually bathing the chorionic villi and thus rendering the transference easy, whereas in the cow it is thick." Several layers of tissue are interposed between the maternal and foetal circulations.

In spite of the lack of proof of antibody absorption by the mouth using the present methods, there is no reason why the experimental evidence in favour of absorption should not be advantageously applied to clinical medicine. As colostrum contains a higher concentration of Rh antibodies than breast milk it would only serve as an additional precaution if colostrum feeding is specially interdicted, though breast-feeding may be allowed as is the practice at the Hospital for Sick Children.—I am, etc.,

Madras, India. K. S. RANGANATHAN.

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Natural Position for Childbirth

SIR,—Dr. Kathleen Vaughan's letter (Jan. 31, p. 222) draws attention once more to the natural position for childbirth. Most of us must have had cases where a woman has delivered herself in this position. Nearly all women who are blessed by or who suffer from precipitate labour give birth when standing or squatting, often perhaps imagining that nothing more than movement of the bowels is taking place—that at any rate has been my experience. The most impressive demonstration that I have witnessed of the efficacy of the squatting position occurred in 1921. I had been called to a confinement at a lonely farmhouse, I believe the woman's eighth. My first visit was before 9 a.m. I called several times during the day and no progress was evident. She repeatedly proclaimed that she could never have the baby "on the bed," she must "get down to it." I called at 9 p.m. and found little or no change though the nurse appeared to be working hard with her in the left lateral position. She pleaded with me to let her "squat," and so at my suggestion a horrified nurse spread a clean sheet on the floor, the patient squatted as illustrated by Dr. Vaughan, and in a few minutes the child was born easily and without damage to the perineum.

It has been my habit in forceps delivery to have the patient in the lithotomy position. This appears to me to be the easiest and most convenient position, especially when working with little or no skilled assistance, the thighs being held flexed on the abdomen by an "obstetric helper"—a strip of webbing passing behind the patient's neck and fastened just above each knee. In this position one has the nearest approach to natural squatting.

In her instructive and interesting book Dr. Vaughan puts forth convincing arguments for more natural, and therefore more rational, habits of living, feeding, and methods of delivering—or allowing the woman to deliver herself—in the attempt to reduce maternal and neonatal deaths. She points out that sepsis figures largely in the Ministry of Health reports. This I think is very largely determined by the mother's diet and her resistance to infection. One of the worst cases of puerperal infection I attended, with pelvic abscess and peritonitis, occurred after the birth of a puny child with no manipulation or interference of any kind. This woman confessed to me afterwards that she had not carried out instructions for dieting or taking vitamins, but had starved herself to produce a small child and have an easy time. She had a very small baby—and nearly died.

Not only is our management of pregnancies and confinements becoming more and more "scientific" and artificial, but so is the care of the newborn babe. We hear a great deal of clinics, baby weighing, and dried milk, but very little of breast-feeding. That seems to be going out of fashion. Is the modern mother, well supplied with vitamins and priority milk, incapable of producing the proper food for her baby? On booking a case in the third month of pregnancy I was once asked, "And what is the best artificial food for the baby"? Recently I spent an hour in a news theatre where a modern British hospital was depicted with its up-to-the-minute maternity block, and flashed on the screen was a picture of a lusty baby vigorously sucking at his bottle. A far prettier and more suitable "shot" would have been a happy and contented mother with her baby at the breast. I recently met an Australian woman who had had two children in nursing homes in England. She said she was always a "slow beginner" with her milk, but after the third or fourth day always had an abundant supply; but she had to plead with her doctor and the staff at the homes not to put her babies on to artificial food before she had had a real try to feed them herself.

Doubtless a great number of stillbirths and neonatal deaths are due to disproportion and the consequent difficulties in delivery, but how many of these babies are weaklings due to deficiencies in the mother's diet? Especially before the days of the expectant mothers' priorities the percentage may have been high. This together with artificial feeding, pulmonary infections, and tight wrapping—as I have previously urged—may account for many neonatal deaths. It is said that 50% of babies swaddled in the seventeenth century died in their first year. Even now, when expectant mothers receive priority foods, many of them may suffer from undernourishment, as they are unlikely to take the special supply of extras themselves if they have young children, who naturally become the beneficiaries.

I regret that Dr. Vaughan's *Safe Childbirth*, and Dr. G. Dick Read's *Revelation of Childbirth* were not available at the beginning of my career instead of at the end. I strongly recommend all who practise midwifery to study both these excellent books.—I am, etc.,

Huddersfield. S. H. WADDY.

Peptic Ulceration

SIR,—With Mr. V. J. Kinsella's desire to apply Occam's Razor to clinico-pathological interpretations (Feb. 14, p. 318) I have full sympathy. He cites in analogy the chronic ulcer of the leg, an instance I have used for many years in this very connexion, but surely the production of pain in the peripheral nervous system has a mechanism different from that in the viscera? The middle term obtrudes itself without undue multiplication of the entities, particularly if we exclude for the purpose of this discussion extra-gastric causes such as pancreatic erosion. The interposition of the food relationship of ulcer pain inevitably introduces gastric function as a middle term; the implication of the secretion as a cause is negatived by a large number of considerations such as the absence of reaction to pure acidifiers and alkalizers (HCl and NaOH), and the persistence of the same pain after the onset of a generalized obstructive mucosal gastritis with total achylia.

In carcinoma of the stomach the difficulty of explaining pain in the presence of achlorhydria was for long thought to be over-

come by introducing the element of infiltration; unfortunately for this view, in leather-bottle stomach with almost universal infiltration pain is at a minimum. The rigid fibrosis of carcinoma precludes the distension essential to the genesis of muscular visceral pain. Again the accompanying inflammatory cellulitis provides the explanation—recession or removal of the infective factor in stomach cancer by oral cleansing, gastric lavage, short circuit, etc., mitigates or relieves the pain entirely (incidentally also, as is too little known, the achylia). Hence the paradoxes that a man's best help in getting an early diagnosis of carcinoma of the stomach is to have a filthy mouth, and conversely, that in the edentulous carcinoma of the stomach is peculiarly latent. Pathology is one and indivisible, the most potent cause of fluctuations in symptoms throughout clinical medicine is the ebb and flow of inflammatory oedema.

But now Mr. Kinsella introduces the question of pain and haematemesis. Is this a Greek gift or a very subtle emphasis of the case I have outlined? Haemorrhage from "peptic" ulceration may be a slow trickle (the basis of the occult blood test) from the circumulcerous inflamed mucosa—gastroscopists will agree the origin is not granulation tissue in the ulcer floor—or brisk, or severe. Brisk, always recoverable, bleedings occur from erosions (the old "acute" ulcers), occurring indiscriminately as regards site. They are small, heal rapidly, and are never followed by chronic ulcer. They involve only the mucous and submucous coats, opening comparatively small vessels, and not holding them open and non-retractable by chronic fibrosis and oedema, and *uncommonly involve the gastric musculature*. In these erosions pain is but a transient, often absent, feature.

In chronic ulceration brisk haemorrhage may arise from erosions in concomitant gastritis (with clinical features as in the preceding instance), or from the opening of large extramural vessels by an exacerbation of devitalization and digestion. Rigidity of the surroundings prevents "natural" arrest of bleeding. Pain precedes and accompanies the bleeding, and its persistence indicates progression of necrosis and inflammatory reaction. Traditionally such cases have been treated by either complete prohibition of intake or merely sips of water—such a regime leads quickly to a total cessation of gastric function, motor or secretory. Hence the age-old fasting treatment gives as rapid a recession of ulcer symptoms as any of the most elaborate drug and diet treatments, particularly if stimulation of gastric peristalsis by iced water and the epigastric ice-bag is precluded. In fine, the treatment of haemorrhage is that best calculated to diminish ulcer symptoms; persistence of pain, as noted in the Goulstonian Lecture, is of bad prognosis, indicating despite such treatment an extension of the ulceration. That the clot in the floor of the ulcer prevents the deadly HCl from getting at and stinging the ulcer is most difficult to believe from any *a priori* chemical consideration; muscular atony from acute anaemia of haemorrhage is at least a credible accessory factor.

The haemorrhage–pain clinical features of ulceration offer therefore no contradiction but rather a substantiation of the cellulitis–myogenous view of gastric pain in ulcer and carcinoma. My original letter was a challenge to the radiologists in their claim to demonstrate healing of "peptic" ulcers; with them must now be included the physicians in the indictment that they fail to correlate morbid anatomy with the signs and symptoms of gastric disease.—I am, etc.,

London, W.1. C. JENNINGS MARSHALL.

Oral Intubation and the Davis Gag

SIR,—I must thank Dr. I. W. Magill (Feb. 28, p. 417) for his observation on the tongue plate for the Boyle–Davis gag, which I described in the *Journal* of Feb. 7 (p. 267)—needless to say I claim no originality for the device, the principles of which must have occurred to every E.N.T. surgeon. I cannot agree, however, that intubation is not advisable for tonsil operations, though it is far from essential. As he admits that it is suitable for the more difficult and lengthy operation of cleft palate, however, I cannot see why it is not, to say the least, preferable for even short cases. After all it is a simple matter to put in a tube, and the increased safety and control of anaesthesia (on both patient and surgeon) are surely adequate compensation for cutting the hourly production rate in children down to five or six dissections.

He puts emphasis on the ability of the surgeon and the anaesthetist. Is the anaesthetist justified in assuming that the surgeon is "canable," by which I presume he means the operation is relatively rapid and avascular? These are optimum conditions—I feel it is safer policy to prepare for the worst.—I am, etc.,

Darlington. J. S. C. MONRO.

The Danger of Intubation under Trichlorethylene

SIR,—Dr. Gordon Ostlere has recently published two articles in the *Journal* concerning the use of trichlorethylene (April 5, 1947, p. 448, and Jan. 31, p. 195). The first dealt chiefly with the use of curare in "poor-risk patients." It certainly confirmed my own belief and experience in the wide range and usefulness of trichlorethylene especially when used in combination with curare for such cases. In the second article the toxic effects as shown by cardiac arrhythmias are mentioned and Dr. Ostlere points out that trichlorethylene should not be used in the presence of an existing cardiac irregularity, and that it should be replaced by ether where an irregularity occurs and persists with trichlorethylene.

Several fatalities have occurred when this drug has been used, but one cannot always blame the drug directly—in fact it is probably safer to lay the blame in most cases partly to the technique used and/or partly to some concealed or unobserved condition of the patient which may even have been unassessable. I am unable to present any technical details regarding recorded fatalities with this drug, but I would like to mention two cases in my own experience.

Case 1.—A man aged 49—poor colour and rather wasted—was suffering from right renal calculus. B.P. 160/100. Blood urea normal. Left kidney normal. Heart and lungs, n.a.d. It was proposed to perform a right nephrectomy. "Omnopon," gr. 1/3 (22 mg.), and scopolamine, gr. 1/150 (0.43 mg.), were given and he arrived in the theatre more than usually drowsy. 0.4 g. thiopentone was then administered followed by gas-oxygen and trichlorethylene. Respiration soon answered to carbon dioxide stimulation and blind intubation performed at the first attempt. There was immediate reflex spasm and breath-holding, the breath being held at the expiration of a pronounced cough. In an attempt to relieve the spasm I administered curare 15 mg. and oxygen under pressure. I hoped that the incision might prove a stimulus to the respiratory centre, but almost immediately after the incision had been made the heart ceased to beat. Remedial measures were instituted and the heart eventually restarted by massage by an incision through the diaphragm. Voluntary respiration returned very slowly and then more rapidly, changing later to Cheyne–Stokes respiration. He was then removed to the ward and transferred to an "iron lung," being taken out at intervals. Always there was a return to Cheyne–Stokes respiration. He died thirty-six hours after the incision without regaining consciousness. Post-mortem examination showed marked atheroma of aorta and a hypertensive thick-walled heart. The coronary arteries were pipestem in character and so narrowed by atheroma that their lumina were invisible. The cerebral arteries were of similar calibre. Death was therefore due to cardiac failure as a result of the coronary atheroma and essential hypertension.

There is little doubt that this patient had not long in this world, but I feel he would have died more peacefully and in his home had a deeper plane of anaesthesia been used for the period of intubation.

Case 2.—A well-built young man, over 6 feet tall, was to have a gland excised in his neck. Exactly the same induction technique was used. Breath-holding occurred following intubation, but the pulse remained full and regular. Here I felt it was justifiable to administer curare. I gave him 10 mg. curare, but this time kept the patient in the anaesthetizing room. A gradual relaxation of spasm occurred and a return to normal respiration so that the operation was continued successfully under gas-oxygen and trichlorethylene.

These two cases I think emphasize sufficiently the danger of intubating some patients under too light an anaesthetic, and such cases should be brought out into the open.

Some anaesthetists advise using a cocaine spray before all cases requiring intubation. I would say this is unnecessary as a routine and only serves to upset a number of patients. Some prefer to intubate whenever possible through the mouth. Where relaxation is not required and the patient is well built and possesses a full upper and lower set of teeth the nasal route is often to be preferred. And finally a discussion in this journal has recently been taking place concerning the technique of Dr. Bourne, of intubating under almost maximum doses of thiopentone and curare.

We have therefore two extremes—very light, and very deep. In view of possible dangers I consider it unsafe to make intubation under trichlorethylene a routine technique unless the larynx has been well cocainized. Rather would I suggest that laryngoscopy should be performed and a tube introduced under cyclopropane or ether, and then possibly a change made to trichlorethylene as soon as the curare has been given or the patient has settled

down in a suitable "plane." For direct nasal intubation when relaxation is not required I consider that ether should be used to subdue the laryngeal reflex. If this is contraindicated, as in a toxic thyroid, heavier premedication and a systematic spraying with cocaine should be carried out.

Although we may be fully aware of the great value of both trichlorethylene and curare we should be careful lest we misabuse them by going to extremes with both—that is to use trichlorethylene where the laryngeal and other reflexes are not subdued, and to use curare to take the patient far beyond the plane necessary for the immediate process of intubation. This of course in no way infers that trichlorethylene is not an otherwise excellent agent when administered, following a thiopentone induction, with an abundance of oxygen using the semi-closed method with a facepiece, for a wide range of cases which do not provoke strong reflex disturbances in the respiratory and cardiac centres. An injection of atropine or scopolamine should always precede a trichlorethylene administration.—I am, etc.,

Bristol. W. M. MAIDLOW.

Trichlorethylene in General Anaesthesia

SIR,—Although fully appreciative of Dr. Gordon Ostlere's review of the position of trichlorethylene in general anaesthesia (Jan. 31, p. 195), I do not believe that the role of this agent has been fully evaluated as yet, nor the signs of anaesthesia obtained with it fully explained. The somewhat meagre literature on this subject always appears remarkably restrained and undecisive, and I should like to make a few personal observations.

It seems certain that trichlorethylene can be a most useful addition to the armamentarium of the anaesthetist provided that it is used with care and judgment. It is also true to say that it can, when improperly used, produce many unpleasant, embarrassing, and even menacing side-effects. Trichlorethylene, in any concentration, has some effect on respiratory function. In low concentration this effect is minimal and need cause no disturbance to patient, surgeon, or anaesthetist. With higher concentrations several effects may be produced. Tachypnoea is commonly the first sign, the respirations being shallow as well as frequent. This may lead to the appearance of cyanosis, or actual respiratory arrest may occur. It has been stated that this increased respiratory rate is due to a direct sensitization of the pulmonary inflator and deflator receptors. The impulses are said to pass by way of the vagus nerves, and the giving of atropine in full dosage before the administration of trichlorethylene may, on theoretical grounds alone, render marked tachypnoea less likely to occur. Another explanation to be considered is that the lung bases become filled with the heavy and relatively non-volatile vapour of trichlorethylene, thus reducing the available lung capacity and leading to anoxic anoxaemia. The respiratory rate and depth is also influenced by the nature and severity of the surgical stimuli, as with all anaesthetics when used in the lighter planes of anaesthesia.

The characteristic and comparatively well-defined signs of anaesthesia attendant on an ether anaesthesia are notably lacking or confused when trichlorethylene is used. The pupils are inconstant in size and show frequent changes during the administration, although a dilated pupil is suspicious of overdosage. The eyeball is usually more or less mobile, tending to fix slightly off the central position. Slight twitching movements of the eyelids and face muscles are seen occasionally, and athetoid movements of the fingers are not uncommon. It seems that the effect of trichlorethylene on muscle tone has not yet been fully elucidated. That it has a definite tendency to produce an increase in tone, which may be the cause of the above effects, including that of the eyeball muscles, is possible.

I observed the following disturbing phenomenon recently. A healthy young adult male was undergoing operation for hydrocele. Induction of anaesthesia was by means of 17 ml. of 5% soluble thiopentone solution and maintenance was by gas-oxygen (80:20%) supplemented by trichlorethylene. On mobilization of the testis convulsive diaphragmatic movements started, and these continued at intervals, separated by a series of about four normal respirations. These jerky abdominal movements would be described as "hiccup" in the conscious subject and they continued for about 15 minutes, during which time all attempts to abolish them failed completely. The trichlorethylene was cut out of circuit and ether was added, without result. The oxygen was increased to 35%, and 5% carbon dioxide was added for a few breaths, again without apparent effect. The "hiccup" finally ceased after the inhalation of about a dozen breaths of air at the conclusion of the operation. It is probable that this picture was produced by the action of reflexes from the site of operation, these reflexes not being obtunded during a smooth trichlorethylene anaesthesia. This operation is, no doubt, one of many where trichlorethylene as an anaesthetic is *not* indicated.

Cardiac arrhythmias occurring during trichlorethylene anaesthesia consist usually of extrasystoles which may progress to pulsus bigeminus as with cyclopropane. These usually disappear on lowering the anaesthetic concentration and seldom cause further anxiety. The vapour of trichlorethylene is slightly irritant and may cause coughing or laryngeal stridor if increased too rapidly, although these effects are rare in comparison with those seen with ether. The pharyngeal and laryngeal reflexes are obtunded quickly, and a pharyngeal airway is tolerated early.

Cases suitable for trichlorethylene anaesthesia must be selected carefully and premedicated sufficiently at the proper time. The fact must be faced that trichlorethylene cannot replace ether in any case where deep narcosis is necessary or where any degree of true muscular relaxation is desirable. The concentrations of trichlorethylene necessary for the induction of surgical anaesthesia are very much higher than those required for maintenance, as Dr. Ostlere states, and these high concentrations are frequently the cause of the side-effects which rightly incite suspicion in the mind of the administrator as to the safety of this agent.

Trichlorethylene finds a place in modern anaesthetic practice as an agent for maintaining surgical anaesthesia induced by another agent, preferably thiopentone. It is doubtful if it finds an equal place in the induction and maintenance of surgical anaesthesia per se. The administration of trichlorethylene for maintenance is different from that of ether in that a much closer watch must be kept on the patient for signs of overdosage, and the amount of trichlorethylene must be kept down to the absolute minimum.

It seems that the best results are obtained when gas–oxygen–trichlorethylene is used for maintenance following a thiopentone induction. In these cases the respirations frequently remain shallow and only slightly increased in rate, and the anaesthetic concentration can be kept minimal. The pushing of trichlorethylene results in rapid, shallow breathing with jerky diaphragmatic movement and noisy "blowing" respirations, perhaps accompanied by laryngeal stridor, cardiac arrhythmias, and cyanosis with dilated pupils. This picture is not one of smooth anaesthesia and it is rarely, if ever, seen when trichlorethylene is used following induction to surgical anaesthetic depth with thiopentone. It is desirable to give sufficient thiopentone to produce satisfactory surgical anaesthesia for the particular operation before maintaining the anaesthesia with gas–oxygen–trichlorethylene. In this way all the advantages of trichlorethylene anaesthesia are obtainable without the side-effects attendant on the high concentrations necessary for both induction and maintenance of anaesthesia by this agent alone.

I believe that the pharmacology and clinical uses of trichlorethylene will bear further investigation, but such investigation must be accompanied by clinical impressions from as many sources as possible. It is with this object in view that I note the above observations.—I am, etc.,

Huddersfield. RONALD A. MILLAR.

POINTS FROM LETTERS

Some Modifications

Dr. EMRYS D. OWEN (Neath, Glam.) writes: Failure to solve the present position will discredit both parties and cause a severe loss to the medical profession. I suggest that the present planks in the B.M.A. platform be abandoned and the following substituted: (1) To establish the chance of a successful appeal to the courts the conditions under which a complaint against a doctor could be presented to the Local Executive Committee and Tribunal should be rigidly delineated. The regulations governing the conduct of both patient and doctor should be strictly codified by a committee of practitioners. These would exclude any possible victimization on political grounds. Dismissal from the Service should give the doctor an automatic right to one year's income in lieu of notice (see precedent recently in another service). As a corollary a doctor should be expected to give one year's notice of retirement, during which he could have a say in the election of his successor and introduce him to the practice. (2) Basic salary: the present offer should be accepted, but the successor to the panel conference should be formed into a trade union within the B.M.A. necessitating a special annual subscription ready to defend our position, using a modified strike weapon such as refusal of certificates if necessary. (3) Claim the right to elect a proportion of medical members of all

committees under the Act, retaining our present position with regard to Local Executive Committees. I consider this to be of paramount importance, as it would prevent the election of some of the Minister's stooges. A compromise on the above lines would possibly enable us to enter the Service happily.

The Issue is Freedom

Dr. H. A. FAWCETT (Guildford, Surrey) writes: The issue *now* is no more nor less than freedom (reasonable and proper) versus power dictatorship (with a clear political and partisan bias), whether vested in one person or a small clique, in the name of a meaningless, abstract ideology called the "State." And although, at the moment, it appears chiefly to affect doctors, it is already (and will be increasingly) the vital concern of everyone, not only in these once blessed isles but all over the world. I do not think that this tremendous issue, now in its first (and maybe its last) great test here, is sufficiently or widely enough realized even in our own profession, and certainly not by the public in general; nor the fact that we as a body are given the privilege and opportunity of leading this first "crusade" against this insidious and growing evil. Moreover, we have a strength and justification (without in any way neglecting our professional duties or causing that suffering and loss inseparable from ordinary industrial disputes and strikes) almost unique, which, if properly exercised in unity, must not only win its narrower and more domestic battle but kindle a torch of hope and encouragement to all who still value legitimate freedom and elementary individual rights. Moreover, once lost, this splendid chance may never come again—not anyway in peace and in order. . . .

Disciplined Use of Liberty

Dr. K. W. TODD (Croydon, Surrey) writes: We have now to tell the nation what we stand for. We want freedom, but we must convince our fellow countrymen that we mean to make right use of it. We want freedom to improve our health work, freedom to distribute ourselves with regard not to wealth but to usefulness. Can we not publish a plan for that disciplined use of liberty which has always been the backbone of the profession and of democracy?

Appeal to the Nation

Dr. E. H. STRANGE (Rushden, Herts) writes: Our best line for presenting our case is to appeal to the nation, showing that we are marked out for State control . . . because we are necessary agents in the complete State enslavement of the working classes. "Direction of labour" would be ineffective if the loop-hole of physical incapacity is not guarded by controlled State agents. It is useless to rely upon the political opponents of the present Government. The Conservative Party and the Conservative Press are deeply inbred with the modern notion of power politics, the omnipotent and omnicompetent State, and they do not understand wherein an honourable profession differs from a corps of salaried technicians.

Unpaid Civil Servants

A DOCTOR'S WIFE writes: It strikes me that the main practical factor which will decide whether or not Mr. Bevan's health plan will work is the general practitioner's wife. Should she be unwilling to accept the status of unpaid Civil Servant, neither Mr. Bevan nor his numerous but possibly uninformed supporters in the House of Commons will be able to make their own plan work by July 5 of this year. . . . Fortunately the time has not yet arrived in England when politicians can interfere in the private lives of the individual to the extent of coercing some housewives to use their own homes as surgeries of the State. . . .

Hold Together

Dr. R. E. ARANGO (London, W.2) writes: With regard to the doctors and the National Health Service Act, 1946 . . . what they strongly feel is that with the Act as it stands they are being denied their right to work if they choose to stay out.

The Act indubitably states that doctors have the choice of staying out and remaining in private practice, but that is a hollow and valueless concession, worth no more than the ink it is written in; for in reality although the Act ostensibly does not deny them directly the right to work, yet *indirectly* it forcibly entices the patients away from them towards the "free" Health Service. . . . And then if those who stay out want to sell the goodwill of what remains of their practice, there will be nobody to buy, for the younger doctors will have tended to choose the line of least resistance and entered the Health Service to become eventually State medical slaves. If doctors do not hold together and let the Act be stillborn until a good one be conceived, the price to pay by those who still love and choose freedom and dignity will be but ruin and starvation in their loved profession. . . .

Treatment of Prickly Heat

Dr. A. C. BRYSON (St. Mawes, Cornwall) writes: The interesting correspondence on this subject prompts me to give my experience. Some thirty years ago Dr. Harston, of Hong Kong, published a book on the treatment of subtropical diseases of children. In this he advocated the use of perchloride of mercury for this complaint —the prescription being aq. cologniensis ʒii made up to ʒx with lotio hydrarg. perchlor. 1:2,000. This was put up in a sprinkler-top bottle with directions to dab freely affected parts and allow to dry. I regret that I cannot give the date of publication as my library was confiscated by the Japanese when I was interned on Dec. 8, 1941.

In the very distressing cases complicated by secondary infection with pyogenic organisms in the scalp and frontal region, irritated by the band of the topee, treatment twice daily with a thick lather of mercurial soap, such as "afridol," and left to dry for five minutes has seldom failed to give complete relief in two days.

Oxygen Cylinders

Dr. REX BINNING (Hove, Sussex) writes: I am prompted by a recent experience to draw attention to the dangerous and widespread practice of covering the oxygen cylinders used in hospitals and nursing homes with a bag, which is tied round the shoulders of the cylinder and so completely obscures the distinguishing marks painted thereon.

I asked for a cylinder of oxygen and was given a cylinder containing oxygen 93% and carbon dioxide 7%. Fortunately I had taken the precaution of pulling the cover down from the shoulders of the cylinder and thus observed the white and green band, and no harm was done. The British Oxygen Company and Mr. Charles King have gone to considerable trouble by the institution of non-interchangeable couplings to prevent the wrong cylinder being used on anaesthetic machines. It is a pity that their efforts should be completely nullified by theatre sisters and others continuing a practice for which there can be scant justification.

Herpes Zoster and Chicken-pox

Dr. HOWEL LEWIS (Swansea) writes: The letter by Dr. C. C. H. Chavasse on the above subject (Feb. 14, p. 318) reminds me of two cases in the converse order that I saw recently. A woman brought her young daughter to my surgery one evening with obvious chicken-pox. A week later the mother again saw me. She had developed a moderate attack of intercostal herpes zoster from which she has not yet recovered. It would be interesting to know if this sequence occurs very often. Roxburgh states that it is ten times less common.

Incidentally, how would one allay a severe post-herpetic neuralgia of the cervico-occipital type in an old man of 72? The popular anodynes have been used; a course of pituitary extract (B.P.) was given during the acute stage, and the usual analgesics in various combinations have been used to no effect, not to mention electro-therapy at the local hospital.

Natives of the Tropics

Dr. R. E. ARANGO (London, W.2) writes: Dr. L. Everard Napier states (Feb. 14, p. 317) that during his 26 years in India he referred to the natives of India as the "indigenous inhabitants," but why he did not call them by the simpler terms of "the people" or "the inhabitants" beats me. The only explanation I can conceive is that the foreign rulers of India considered themselves to be *the people* or *the inhabitants* that really mattered, and as they (the foreign Britishers) could not very well call the immense multitude around them "foreigners," so they in disdain called them "natives." It is to such a terminology that the people of India have been justly averse and sensitively prejudiced. . . .

*** This correspondence is now closed.—ED., *B.M.J.*

Injection of Diabetic's Skin

Dr. T. S. L. JONES (Whitehaven, Cumberland) writes: The routine preparation of the skin for a hypodermic injection is by swabbing the area with spirit in one form or another. Now a normal person's skin is soft and pliable and offers slight resistance to a hypodermic needle—no more resistance than one would encounter by plunging the needle into a pat of butter. Consequently a hypodermic injection should be almost painless.

The skin of the diabetic, thanks to its daily anointing with spirit, is not a normal skin. It is almost as tough as leather and consequently a hypodermic injection into the tough skin of the diabetic can be a very painful process, broken needles being not uncommon, and periodically the patient has to seek a new area of skin which has not been toughened.

My plea is for the abolition of the tyranny of surgical spirit, and in substitution I would suggest ordinary cleanliness as achieved by the use of soap and water. I instruct my own diabetic patients to bathe the part with soapy water and dry with a towel, instead of swabbing with spirit, and they have all been grateful for my suggestion. Over a period of many months I have not encountered one instance of an injection site becoming infected, perhaps because the skin is in a healthy condition and not dehydrated.

In my own general practice I have not used spirit for a long time when giving a hypodermic injection.

Obituary

R. V. SOLLY, M.D., M.R.C.P., F.R.C.S.

Dr. Reginald Vaughan Solly died in Exeter on Feb. 19 at the age of 83. His father was Edward Harrison Solly, of Congleton, Cheshire. He was educated at Winchester and St. Thomas's Hospital, qualifying in 1887. After experience as a house-surgeon and as clinical assistant to the Skin Department of St. Thomas's Hospital he became house-surgeon at Bristol General Hospital. He graduated M.B., B.S. in 1888 and proceeded M.D. five years later. He took the F.R.C.S. in 1890 and the M.R.C.P. in 1910. He entered general practice in Exeter in the nineties, but had always been specially interested in pathology, and his enthusiasm led him to become the organizer of a separate pathological department at the Royal Devon and Exeter Hospital. In 1911 he was first to hold the new appointment of pathologist to that hospital. The accommodation allotted to him was inadequate, and subsequently a small laboratory was erected for his department and came to be known as "Solly's Temple." His appointment as pathologist involved also his appointment as assistant physician, a post which he held until 1923. He continued as head of the department of pathology until his retirement in 1931, when he became consulting pathologist and a life governor of the hospital. For some years he was also consulting medical officer to the Exeter Dispensary. He was one of the foundation members of the Association of Clinical Pathologists, which has just celebrated its coming of age. For many years he was secretary of the Devon and Exeter Medico-Chirurgical Society.

Dr. Solly was a keen entomologist with a special interest in lepidoptera, both British and foreign. For over fifty years he was a member of the Field Club of the University College of the South-West, which he served as president and lecturer. He had a fine collection of butterflies and frequently visited Southern France, particularly around Hyères, in search of rare specimens. He was an adept dry-fly fisherman, making his own flies, and he found time every week for a fishing expedition, often accompanied by one of his technicians. He spent many happy holidays fishing the Wiltshire rivers around Wylye and Mere. In 1902 he married Frances Anne Laura Buckingham, who predeceased him by a week. His publications included articles on rat-bite fever, on Ludwig's angina, and on trichinosis.

F. A. R. writes: "Solly was highly cultured and widely read; of quick, nervous, sensitive, and highly diffident temperament; with a fine sense of humour; quick to an intense anger, which, however, always disappeared equally quickly like an April shower. He was a man of no commercial ambitions or instincts, enjoying a wide popularity among his colleagues throughout Devonshire. No memoir of him would be complete without mention of the speeches annually demanded of him at the Exeter and South-West dinner. At this function his speech was always a main event, eagerly anticipated and delivered with a visible shy hesitation characteristic of the man, but erudite and containing an element of spontaneity and dry humour."

Dr. FREDERICK MCSORLEY, M.P., died suddenly at his home in Belfast on Feb. 9 at the age of 56. He was educated at St. Malachy's College, Belfast, and at Queen's University, where he graduated in 1916. He subsequently obtained the D.P.H., and in 1922 proceeded M.D. Later he took the M.R.C.P.I. and was elected F.R.C.P.I. in 1930. For the last twenty years he had been honorary visiting physician on the staff of the Mater Infirmorum Hospital, Belfast. Some years ago he was also appointed visiting physician to the Belfast City Hospital. He was in daily attendance at both hospitals up to the time of his death. For many years he had been clinical lecturer and examiner for Queen's University, Belfast, and he had also examined for the Royal College of Physicians. In the General Election of 1945 he was returned at the top of the poll as one of the university members of Parliament. His was a very full life and he never spared himself either in the course of his medical or his political duties. He was a member of the British Medical Association and of the Ulster Medical Society. Despite manifold duties which would have overwhelmed a man with less energy he found time to contribute articles occasionally to medical and scientific journals. His opinion was much sought after by his medical colleagues and his advice greatly respected. He enjoyed to the full the confidence of the medical fraternity in Northern Ireland and over the border. In Parliament he was a popular figure, and in the advocacy of his views, often directly conflicting with those of the majority—for example, on the question of the appropriation of hospitals by the Government—he offended no one. He stood for principle and never indulged in personalities. He was a man of the highest moral character and great generosity, lovable both for his sterling qualities and for his cheery optimism. In his own family circle he was seen at his best. To each member of his devoted family his loss is irreparable. He leaves a wife, four sons, and two daughters. To them we offer our sympathy.—E. M. H.

Dr. GEORGE WILSON died at his home in Nairn on Feb. 9 at the age of 80. Dr. Wilson was a native of Strichen, and was educated at Chanonry School, Old Aberdeen, and Aberdeen University. He took his M.A. in 1888, and graduated M.B., C.M. in 1891. He was the senior practitioner in Nairn, where he had settled in 1898. He was in the old Nairn Artillery Volunteers, and later became medical officer to the Inverness battery of the R.H.A., serving in the Middle East in the 1914–18 war. Dr. Wilson took a great interest in local affairs and was medical superintendent of Nairn Hospital and a trustee of Nairn Savings Bank. He had also been visiting surgeon to the Chalmers' Hospital and assistant visiting physician at the Banff District Asylum. In the early years of his practice he did his rounds on horseback and later owned the first motor-cycle in the district. He had been a member of the British Medical Association for over fifty years, and was chairman of the Banff, Elgin, and Nairn Division in 1922–3, and president of the Northern Counties of Scotland Branch in 1929–30. He is survived by his wife and four daughters.

Dr. JOHN WILFRED NUNN, of Hadley Green, Barnet, died suddenly on Feb. 11 at the age of 72. Dr. Nunn, who was born in Penzance, was a student at St. Bartholomew's Hospital, and qualified in 1900. He held hospital appointments at Stamford and at Guildford before settling in Hadley in partnership with the late Dr. Walter Mercer. His elder son, Dr. J. A. Nunn, entered the practice in 1933 and has since continued in partnership with his father. Dr. Nunn was on the staff of the Victoria Cottage Hospital and was medical officer to the Post Office and to the Queenswood School, Hatfield. In his younger days Dr. Nunn was a keen cricketer and lawn tennis player, and he and his wife had been active for many years in the Barnet Arts Club and other local organizations.

Medico-Legal

DEATH OF A DOCTOR

At the Assizes in Leeds on Feb. 25 Mr. Justice Byrne awarded damages of £15,025 with costs to the widow of a doctor. The defendants, the owner and the driver of a motor lorry with which the doctor collided when riding his auto-cycle last April, admitted liability. In the collision the doctor, who was 33, received fatal injuries.

According to a Press report,[1] during the hearing of the case Mr. Justice Byrne was shown a document setting out the terms offered by the Minister of Health to general practitioners joining the new National Health Service. Counsel for the widow said that the doctor had bought a Darlington practice in 1945 for £3,000. In the first full year in which he worked there his income was £3,115, of which £763 came from private patients. The practice was growing steadily. Counsel said that if the doctor had joined the new health service the lowest gross income he would have received would have been £2,208. Counsel for the defendants said in view of what might happen to the profession the doctor might not have entered the service and would have had to depend solely on the income derived from private patients.

Mr. Justice Byrne said: "I am inclined to take the view that if he had remained outside the service the number of his private patients would have increased considerably."

[1] *Yorkshire Post*, Feb. 26, 1948.

Medical Notes in Parliament

The Minister and the Profession

Mr. DE LA BÈRE on March 4 asked the Prime Minister whether, in view of the necessity of obtaining the co-operation of a maximum number of the medical profession before July 5, 1948, he would consider appointing an independent arbitrator for the purpose of finding a solution to the present impasse. Mr. ATTLEE answered, "No, Sir." He said that matters which had already been decided by Parliament would not be a proper subject for arbitration.

Mr. DE LA BÈRE inquired whether the Prime Minister was fully aware of the grave position which must arise in July because he had refused to meet the views of the vast majority of the doctors. Did Mr. Attlee know that the people of the country wished to know why the Government had allowed this position to come to pass? Mr. ATTLEE said that did not give any justification for Mr. De la Bère's proposal. Mr. DE LA BÈRE said it gave every justification.

Air-Commodore HARVEY asked whether the Government intended to charge the public for a service if they were not in a position to supply it.

Hon. Members: Answer. No answer was returned, and Mr. WILSON HARRIS then asked would the Prime Minister be prepared to lend a hand himself in future negotiations if he should think that that would be likely to help matters? Mr. ATTLEE said he was prepared to consider any suggestion put before him.

Squadron-Leader FLEMING asked whether the House was to understand that no approach had been made up to date by either the B.M.A. or the Minister of Health upon this matter?

Mr. ATTLEE: To whom?

Squadron-Leader FLEMING: Each other.

Dental Opposition

Mr. BAIRD asked the Minister of Health what steps he was taking to prevent dentists who had publicly expressed their opposition to the National Health Service Act from serving on the local dental committees set up under the Act.

Mr. BEVAN replied on March 5 that he was taking no steps. He hoped that on a closer acquaintance with the National Health Service dentists generally would recognize its merits.

Honorary Staffs' Honorarium.—Mr. HASTINGS asked on March 4 whether Mr. Bevan knew that certain voluntary hospitals now receiving Treasury grants made the receipt of an honorarium by members of their honorary staffs dependent on resignation from their medical advisory committees; and if, in these cases, he would consider withdrawing the grant. Mr. BEVAN said Exchequer help was given before the appointed day to keep the hospitals going. The action mentioned would not in his view justify interference with the domestic affairs of these hospitals. Nevertheless, he deprecated such action.

St. Leonard's Hospital.—On March 4 Mr. HASTINGS asked the Minister of Health whether he intended to publish the report of the assessors appointed to investigate the training of nurses at St. Leonard's Hospital, Shoreditch; and whether a copy would in any case be supplied to the General Nursing Council and the London County Council for their guidance. Mr. BEVAN replied that it was not the normal practice to publish reports of persons appointed to hear appeals on behalf of the Minister of Health. He did not think there were grounds for making an exception in this case. If the bodies mentioned asked to be supplied with a copy of the report he would furnish one confidentially.

Colostomies and Clothing Coupons.—Mr. THOMAS BROOKS pointed out on March 4 that three clothing coupons had to be surrendered before a colostomy surgical belt was supplied. Mr. HAROLD WILSON replied that surgical belts of not more than 6 inches in width specially designed for a number of specified conditions, including colostomy, were available coupon-free, but coupons were required for other types which could not be thus clearly defined because some could be worn in place of other rationed undergarments. The Board of Trade was prepared to consider sympathetically applications for special allowances of coupons for wearers of colostomy appliances subject to the production of medical evidence.

Exchange Control Medical Advisory Committee.—Mr. GLENVIL HALL said on March 2 that as from March 1 no fees would be payable by applicants to receive foreign exchange for medical treatment abroad. In future all applications should be made through a doctor and not by the patient himself. The members of the Exchange Control Medical Advisory Committee were all distinguished medical specialists who since the foundation of the Committee had received no fees except £1,659 from applicants.

No. 8

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 21.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	36	3	15	3	—	90	11	21	3	4
Deaths		—	—				1	—		
Diphtheria	180	20	59	13	5	217	16	51	19	6
Deaths	3	2	1	—	—	2	1	1	—	—
Dysentery	191	19	63	—	—	92	10	53	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	—	—	—
Deaths		—					—			
Erysipelas			51	9	4			59	7	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				15					21	
Deaths	48	7	13	5	1	69	5	18	5	2
Measles*	7,209	766	848	82	19	15,765	644	300	33	288
Deaths†			—	—	—	13	—	2	—	3
Ophthalmia neonatorum	79	4	12	1	—	59	4	12	—	—
Deaths										
Paratyphoid fever	3	—	3 (B)	—	1 (B)	—	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	788	39	15	9	2	1,139	84	20	38	10
Deaths (from influenza)‡	28	4	2	—	—	135	21	7	4	6
Pneumonia, primary			224	40				282	25	
Deaths	221	29		9	6		115			23
Polio-encephalitis, acute	3	—				1	—			
Deaths										
Poliomyelitis, acute	27	3	6	2	—	14	—	1	5	—
Deaths§	3	—					—			
Puerperal fever		3	8		—		3	12		1
Deaths							—			
Puerperal pyrexia‖	86	8	13	—	—	142	11	13	—	—
Deaths		—					—			
Relapsing fever	—	—			—	1	—			—
Deaths										
Scarlet fever	1,828	118	327	44	36	1,081	70	218	20	23
Deaths†			1	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	2	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	1	—	1	6	—	3	—	—	3	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,552	155	55	55	11	2,227	212	387	108	32
Deaths	—	1	1	1	—	9	2	6	4	2
Deaths (0–1 year)	355	37	51	17	9	572	67	103	49	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,801	731	617	167	134	7,896	1313	931	398	229
Annual death rate (per 1,000 persons living)			12·5	10·4				19·4		
Live births	7,964	1216	998	373	270	10,194	1596	1231	397	297
Annual rate per 1,000 persons living			20·1	23·3				24·8		
Stillbirths	215	32	26			260	33	40		
Rate per 1,000 total births (including stillborn)			25					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Vaccination and Inoculation

British subjects travelling abroad, particularly to the Tropics or sub-Tropics, may be exposed to the dangers of infectious diseases not normally prevalent in the United Kingdom. In a recent notice issued by the Ministry of Health, the Department of Health for Scotland, and the Ministry of Health and Local Government for Northern Ireland it has not been practicable to give for every country details of the diseases against which travellers from the United Kingdom should protect themselves in their own interest or against which a particular country requires persons entering it to be protected. Travellers are therefore advised to apply for details to the representative in the United Kingdom of the country to which they propose to travel. The following information may, however, serve as a general guide.

(*a*) All travellers abroad are advised to be effectively inoculated against typhoid and paratyphoid fever.

(*b*) The health authorities of certain countries—e.g., Australia—and some countries in the Tropics and sub-Tropics may require travellers to produce evidence of recent vaccination against smallpox—i.e., evidence that they have been vaccinated not more than three years and not less than fourteen days previously.

(*c*) Travellers to parts of the Far East where cholera is endemic are advised to be inoculated against this disease.

(*d*) Inoculation against typhus is advised for travellers to countries —e.g., in South-East Europe and North Africa—in which that disease exists.

(*e*) Travellers who have been in or who pass through those parts of Africa or South America where yellow fever is considered to be endemic are reminded that, when they enter other countries in which yellow fever does not actually exist but where the conditions favour its development—e.g., India—they may be detained at frontier quarantine stations if they do not possess a valid certificate of inoculation against yellow fever—i.e., a certificate issued not less than ten days and not more than four years previously. Special arrangements have been made for yellow fever inoculations to be given free of charge at centres in the United Kingdom.

When a traveller has been vaccinated against smallpox or inoculated against cholera, typhus, or yellow fever he should obtain, and carry with him, a certificate to that effect on the International Form. A certificate of inoculation against yellow fever will be issued on this form by the doctor carrying out the inoculation: for the other diseases the necessary form can be obtained by the traveller from the company with whom he has arranged his transport.

Discussion of Table

In *England and Wales* decreases occurred in the number of notifications of scarlet fever 97, acute pneumonia 83, diphtheria 31, whooping-cough, 24, and cerebrospinal fever 18, while increases were recorded for measles 1,030 and dysentery 27.

The largest increases in the incidence of measles appeared in Lancashire 203, Warwickshire 147, London 117, Surrey 116, and Middlesex 102. The notifications of scarlet fever declined in most areas of the country; the largest fall was London 32, and the only exception to the general trend was a rise of 30 in Glamorganshire.

Small decreases in the incidence of acute pneumonia were recorded throughout the country; the largest fall was Durham 33. The largest of the local variations in the returns for diphtheria were decreases in Lancashire 11 and Durham 8. The local trends of whooping-cough fluctuated, and the largest change in trend was a decrease of 38 in London.

The chief centres of dysentery were Yorkshire West Riding 67 (Sheffield C.B. 25, York C.B. 25); Lancashire 40 (Blackpool C.B. 15); Middlesex 23; and London 19. The largest returns of acute poliomyelitis were 3 cases notified in London and in Yorkshire West Riding. Administrative areas with more than one case were Bristol C.B. 2 and Leeds C.B. 2.

In *Scotland* an increased incidence was recorded for measles 46, dysentery 17, and diphtheria 6. The rise in the notifications of dysentery occurred in the north-eastern area; 11 cases were notified in the city of Aberdeen and 10 in Banff County. The other large returns of dysentery were Edinburgh 14 and Glasgow 9. The notifications of diphtheria in Glasgow rose from 25 to 30; half of the total cases recorded in the country were notified in this city.

In *Eire* an increase was reported in the notifications of whooping-cough 36, primary pneumonia 15, and scarlet fever 12, while a decrease was recorded for measles 25 and diarrhoea and enteritis 9. The incidence of measles decreased throughout the country. An outbreak of whooping-cough involving 14 persons was reported from Wicklow, Rathdrum R.D.

In *Northern Ireland* the total notifications of scarlet fever fell by 10. Whooping-cough reappeared in Belfast C.B. with 11 cases.

Week Ending February 28

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,710, whooping-cough 2,631, diphtheria 173, measles 7,312, acute pneumonia 732, cerebrospinal fever 31, acute poliomyelitis 24, dysentery 145, paratyphoid 3.

Medical News

Specialists to Visit Africa

The Secretary of State for the Colonies has appointed 18 specialists, nine of whom will visit East Africa and nine West Africa. The Nuffield Foundation will finance the scheme for six years. The experiment originated from discussions between Prof. H. J. Seddon and the late Dr. W. H. Kauntze. It is hoped that the visitors may be of help to colonial medical staffs, particularly those working in isolated posts.

Portuguese Medical Visitor

Prof. Augusto P. Celestino Da Costa, Professor of the Faculty of Medicine in the University of Lisbon, is spending a fortnight in Britain under the auspices of the British Council. He is Director of the Service of Clinical Analyses in the Lisbon State Hospitals, President of the Portuguese Anatomical Society, and Director of the Portuguese Institute of Histology and Embryology, which he founded. A visitor to Britain before the war, Prof. Da Costa is now renewing and making fresh contacts with colleagues working on research in histology and cytology.

Sir G. Gordon-Taylor in Greece

Sir Gordon Gordon-Taylor is visiting Greece for a three weeks' tour to lecture for the British Council on war surgery.

Medical Golfing Society

At a meeting of the Medical Golfing Society held recently under the presidency of Dr. A. Hope Gosse, Mr. A. C. Palmer was appointed Captain, and Dr. A. Lesley Lankester Honorary Treasurer.

Prize for Essay on Colonial Tuberculosis

A prize of 100 guineas will be awarded by the Council of the N.A.P.T. for an essay on "The Control of Tuberculosis in a British Colony." The competition is open to medical men and women in the British Colonial Medical Service who are of not more than ten years', or less than five years', medical standing. At least three years must have been spent overseas in a medical capacity. Competitors should describe their own proposals for a practical scheme for the clinical, social, and administrative control of tuberculosis, either in the British Colonies as a whole or in one or more of them separately. Writers should give their own opinions based on personal experience of public-health and anti-tuberculosis work. Essays should be sent to Dr. Harley Williams, National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1, to arrive not later than March 1, 1949.

Health and Air Travel

Under the Public Health (Aircraft) Regulations, 1948, all in-coming aircraft, except those plying between the British Isles, will be met by medical officers from April 1. On arrival the commander of the aircraft will report the state of health on board, and passengers will give the names of the places in which they have been during the past 14 days. Passengers showing no symptoms of an infectious disease will be given a card setting out the precautions they should observe if they fall ill within 21 days after arrival, including showing the card to their doctor. If there is any doubt about the nature of the illness, the doctor is asked to inform the medical officer of health for the area at once.

Holiday Milk for Mentally Defective Children

Milk will be available for mentally defective children attending occupation centres whole-time during the holidays. The children should attend the school centres for holiday milk distribution.

Wills

Dr. John William Hunter, of Ipswich, left £4,544; Dr. Samuel Tonge Brooks, of Bacup, Lancs, £5,109; Dr. Charles Forbes Maclean, of Balham, London, S.W., £13,590; Dr. William Grahame Cobb, of Birchington, Kent, £20,433; and Dr. John Cunningham, of Stewarton, Ayrshire, £45,614.

COMING EVENTS

Medical Research Society Lecture

The fourth Medical Research Society Lecture will be given by Dr. Geo. E. Burch, professor of medicine in the University of Tulane, on "Radio-sodium Studies in Congestive Heart Failure" at St. Mary's Hospital Medical School, Paddington, London, W., on Friday, March 19, at 5 p.m.

Rheumatic Diseases

A concentrated week-end course on the rheumatic diseases will be held at the Rheumatism Unit, St. Stephen's Hospital (London County Council), Fulham Road, S.W., on March 19, 20, and 21. The lecturers will include Prof. J. M. Mackintosh, Prof. B. W. Windeyer, Dr. Francis Bach, Dr. Grace Batten, Dr. Philip Ellman, Mr. A. G. Timbrell Fisher, Dr. David Shaw, and Dr. A. G. Signy. Sir Adolphe Abrahams will preside at the inaugural address on March 19.

Criminal Justice

A conference on criminal justice will be held on March 21, with Dr. H. Mannheim in the chair. Lectures will be given at Oxford House, Mape Street, Bethnal Green Road, E.2, on the treatment of juvenile offenders, women offenders, and men offenders. Limited accommodation and meals are available at Oxford House, to which application should be made as soon as possible.

Association of Sea and Air Port Health Authorities

The forty-ninth annual meeting of the Association of Sea and Air Port Health Authorities of the British Isles will be held at Swansea on Wednesday, Thursday, and Friday, May 12, 13, and 14. The provisional programme includes the following papers: May 12, "The Romance of the Port Health Service and of its Association," by Dr. N. Gebbie; May 13, "History of the Swansea Port," by Mr. E. V. Swallow, and "Some Experiences of a Naval Hygiene Officer 1939–47," by Surgeon Captain H. M. Willoughby, R.N.V.R.; May 14, "The Disinfestation of Ships and Cargoes," by Mr. C. P. Heywood, and "The Egyptian Cholera Outbreak, 1947," by Dr. R. Barrett. Afternoon visits will be arranged at a later date. The honorary secretary of the association is Dr. H. C. Maurice Williams, Health Department, Civic Centre, Southampton.

Society of Chiropodists

The annual convention of the Society of Chiropodists will be held in London on Thursday, Friday, and Saturday, April 22, 23, and 24. The proceedings will be officially opened at Friends House, Euston Road, N.W., by Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, on April 22, at 2.30 p.m.; and will be followed, at 3 p.m., by a lecture by Mr. N. C. Lake on "Surgery in Vaso-spastic Conditions of the Leg and Foot." On April 23, at 11 a.m., Prof. F. Wood Jones, F.R.S., will deliver a lecture at the Royal College of Surgeons of England (Lincoln's Inn Fields, W.C.) on "The Emergence of Man"; and on April 24, at 9.30 a.m., at Friends House, Dr. Reginald T. Brain will speak on "Common Skin Diseases affecting the Feet and Nails." There will be a reception by the president of the society and Mrs. Hanby at the Savoy Hotel on April 23, from 7 to 7.30 p.m., followed by a dance, buffet supper, and cabaret. Admittance to all lectures and functions will be by ticket only, and applications must reach the secretary of the society at 21, Cavendish Square, London, W.1, by April 1.

Edinburgh Refresher Course

A fortnight's refresher course at Edinburgh University begins on Monday, May 3, at 9 a.m. It is intended primarily for demobilized medical officers (Class II) and for insurance practitioners. Fee for graduates not claiming expenses from Government sources, 10 gns.

C.M.F./M.E.F. Physicians Reunion Dinner

The reunion dinner of the C.M.F./M.E.F. Physicians will be held at the Apothecaries' Hall, Black Friars Lane, Queen Victoria Street, London, E.C., on Saturday, April 10. Anyone interested should communicate with the honorary secretary, Dr. A. Willcox, 66, Harley Street, London, W.1.

Buckston Browne Dinner

The Buckston Browne Dinner of the Harveian Society of London will be held at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Thursday, June 17.

American Meetings

The Third Inter-American Cardiological Congress will be held in Chicago at the Michael Reese Hospital on June 13–17. This will be followed on June 18–19 by the Annual Meeting of the American Heart Association, and by the meeting of the American Medical Association during the week beginning June 20. Inquiries should be addressed to the Secretary of the Third Inter-American Cardiological Congress, Michael Reese Hospital, Chicago, Illinois, U.S.A.

SOCIETIES AND LECTURES

Monday

EDINBURGH CLINICAL CLUB.—At B.M.A. Scottish House, 7, Drumsheugh Gardens, Edinburgh, March 15, 8 p.m. *Business Meeting* (Current Affairs).

HUNTERIAN SOCIETY.—At Talbot Restaurant, London Wall, E.C., March 15, 7 for 7.30 p.m. Dinner-meeting. "*Neuritis.*" Discussion to be opened by Dr. Philip Ellman, Dr. Aldren Turner, Mr. Dudley Buxton, and Dr. F. S. Cooksey.

Tuesday

CHADWICK TRUST.—At the Sir Edward Meyerstein Lecture Theatre, Westminster Hospital Medical School, 17, Horseferry Road, Westminster, S.W., March 16, 2.30 p.m. "*Adulteration of Food and its Detection,*" by J. R. Nicholls, D.Sc., F.R.I.C.

EUGENICS SOCIETY.—At Burlington House, Piccadilly, London, W., March 16, 5.30 p.m. "*Mental Health Survey in a Rural Population,*" by Dr. W. Mayer Gross.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—March 16, 5 p.m. *Pathological Demonstrations* by Dr. I. Muende.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C.—March 16, 5.15 p.m. "*Injuries of the Ear,*" by Mr. E. D. D. Davis.

ROYAL PHOTOGRAPHIC SOCIETY.—At 16, Prince's Gate, London, S.W., March 16, 7 p.m. "*Stereoscopy.*" Lecture by Prof. D. Harris.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University Street, Gower Street, London, W.C.—March 16, 4.30 p.m. Sydney Ringer Memorial Lecture. "*Pulmonary Oedema.*" 17th Biennial Lecture by Prof. G. R. Cameron, D.Sc., F.R.S., F.R.C.P.

UNIVERSITY COLLEGE LONDON: DEPARTMENT OF PHYSIOLOGY, Gower Street, W.C.—March 16, 5 p.m. "*Some Aspects of General Physiology,*" by L. E. Bayliss, Ph.D.

Wednesday

HARVEIAN SOCIETY OF LONDON.—At 26, Portland Place, London, W., March 17, 8.30 p.m. Harveian Lecture: "*Aphasia and Artistic Realization,*" by Prof. Th. Alajouanine.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—At B.M.A. House, Tavistock Square, London, W.C., March 17, 8.30 p.m. Discussion: "*Juvenile Delinquency,*" to be opened by Dr. John Bowlby, Dr. Dorothy Makepeace, and Mrs. Madeline Robinson, J.P.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—March 17, 3.30 p.m. "*Postural Defects in Childhood and Adolescence*" (illustrated), by Dr. F. S. Cooksey.

ROYAL MICROSCOPICAL SOCIETY.—At B.M.A. House, Tavistock Square, London, W.C., March 17, 5 p.m. for 5.30 p.m. Ordinary meeting. "*Application of the Barnard Ultra-Violet Light Technique for the Study of Living Cells,*" by Dr. R. J. Ludford; "*New Development in Visual Light Microscopy,*" by Mr. J. Smiles, A.R.C.S.

Thursday

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, London, W.—March 18, 8 p.m. Presidential Address: "*The Place of Physics in the Training of the Medical Radiologist,*" by Prof. G. Stead.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At Royal Army Medical College, Millbank, London, S.W., March 18, 7.30 p.m. Laboratory meeting of the Society. Various demonstrations will be given.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, S.W.—March 18, 4.30 p.m. *Neurological lecture-demonstration,* by Dr. A. Feiling.

STAINCLIFFE COUNTY HOSPITAL, Heald's Road, Dewsbury.—March 18, 8 p.m. "*Some Aspects of Dermatological Treatment,*" by Dr. J. T. Ingram.

WELLCOME HISTORICAL MEDICAL LIBRARY: UNIVERSITY AND RESEARCH SECTION, LIBRARY ASSOCIATION: MEDICAL SUB-SECTION.—At Royal College of Surgeons, Lincoln's Inn Fields, London, W.C., March 18, 6.30 p.m. "*Some Literary Surgeons,*" by Mr. V. Zachary Cope.

Friday

FACULTY OF RADIOLOGISTS.—At Royal Society of Medicine, 1, Wimpole Street, London, W., March 19, Joint meeting with British Institute of Radiology and Section of Radiology of Royal Society of Medicine. Symposium on Diverticula of the Alimentary Tract. 2.30 p.m. (*a*) "*Diverticula of the Oesophagus.*" Openers: Dr. A. S. Johnstone and Mr. A. L. d'Abreu. (*b*) "*Diverticula of the Stomach, Duodenum and Small Bowel.*" Openers: Dr. R. Fawcitt and Mr. Harold Edwards. 8.30 p.m. (*c*) "*Diverticula of the Large Bowel.*" Openers: Dr. J. L. A. Grout and Prof. Charles Wells. A discussion will follow.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, March 19, 8.30 p.m. "*Diseases of the Anal Canal and Rectum,*" by Mr. C. Naunton Morgan.

ROYAL INSTITUTE OF PHILOSOPHY.—At University Hall, 14, Gordon Square, London, W.C., March 19, 5.15 p.m. "*Truth,*" by Prof. A. J. Ayer.

ROYAL SANITARY INSTITUTE.—At Town Hall, Manchester, March 19, 10 a.m. "*Public Health Planning.*" Paper by Prof. A. Topping.

Saturday

KENT PAEDIATRIC SOCIETY.—At the Star Hotel, Maidstone, March 20, 2.30 p.m. "*The Maladjusted and Delinquent Child.*"

APPOINTMENTS

The Committee of Privy Council for Medical Research have appointed Harold Percival Himsworth, M.D., F.R.C.P. (Professor of Medicine in the University of London), to be a member of the Medical Research Council.

After being educated at King James's Grammar School, Huddersfield, Prof. Himsworth studied medicine at University College Hospital, where he qualified in 1928, obtaining the University Gold Medal. He proceeded M.D., again with Gold Medal, in 1930, and was elected F.R.C.P. in 1938. He gave the Goulstonian lectures for 1939 and has published numerous papers including many on diabetes mellitus.

John Cecil Wilson Methven, M.R.C.S., L.R.C.P., has been appointed deputy chairman of the Prison Commission.

Dr. J. F. Fraser has been appointed the first full-time medical officer of health for Pontefract, Knottingley, Featherstone, and the Osgoldcross Rural District.

Michael Kremer, M.D., B.Sc., F.R.C.P., has been appointed honorary assistant physician to the National Hospital, Queen Square.

DELANEY, PATRICK J., M.B., B.Ch., D.P.H., Medical and Organizing Secretary of the Medical Association of Eire.

ESHER, F. J. S., M.B., Ch.B., D.P.M., Psychiatrist, Sheffield Regional Hospital Board.

FRASER, A. M., M.D., D.P.H., Senior Administrative Medical Officer and Secretary, Scottish Northern Regional Hospital Board.

GARLAND, HUGH G., T.D., M.D., F.R.C.P., Physician in Charge, Department of Neurology, General Infirmary at Leeds.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—*Part-time Out-patient Medical Registrars:* Dorothy W. Wells, M.B., Ch.B., M.R.C.P., D.T.M.&H.; J. J. Kempton, M.D., M.R.C.P., D.C.H.

LENNOX, MARY, M.B., B.Ch., D.P.H., Port Medical Officer, Barry, Glam.

NOTTINGHAM GENERAL HOSPITAL.—*Honorary Assistant Consultant Psychiatrists:* I. J. Davies, M.D., D.P.M., and H. Fisher, M.D., D.P.M. *Medical Specialist:* R. Gwyn Evans, M.B.E., M.D., M.R.C.P.

RAEBURN, H. A., M.D., F.R.C.P.Ed., Senior Administrative Medical Officer, Scottish South-Eastern Regional Hospital Board.

ROGERS, K. B., M.D., Clinical Pathologist, Children's Hospital, Ladywood Road, Birmingham.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Armin.—On Feb. 29, 1948, at Bath, to Dr. Margaret Armin, wife of Dr. Richard Armin, a daughter.

Davies.—On March 4, 1948, at Woking, to Betty (*née* Benjamin), wife of Lieutenant A. Michael Davies, R.A.M.C., a son.

Milton.—On Feb. 24, 1948, at Walbrook, Banchory, Kincardineshire, to Dr. Jane Crystyan (*née* Salkeld), wife of Dr. David Milton, a daughter.

Ronchetti.—On Feb. 28, 1948, at Nuffield House, Guy's Hospital, London, S.E., to Sylvia (*née* Helme), wife of Dr. John Ronchetti, a son—John Kirkland.

Scott.—On March 3, 1948, at Nuffield House, Guy's Hospital, London, S.E., to Esmé (*née* Pascall), wife of Dr. Leslie Scott, a daughter.

DEATHS

Amdor.—On Feb. 22, 1948, at Royal Infirmary, Cardiff, Alfred Amdor, M.B., Ch.B., D.P.H., aged 40.

Badenoch.—On Feb. 22, 1948, at Hermon Hill Hospital, Wanstead, William Minty Badenoch, M.B., Ch.B.

Bowes.—On Feb. 25, 1948, at "Winhill," Manchester Road, Wilmslow, Cheshire, Paul Bowes, M.D.Ed.

Burton.—On Feb. 25, 1948, at Horsebrook House, Calne, Wilts, James Cecil Burton, M.R.C.S., L.R.C.P.

Cahalane.—On Feb. 20, 1948, Michael John Cahalane, M.B., Ch.B.Glas., Squadron Leader, R.A.F.V.R., aged 55.

Clarke.—On Feb. 24, 1948, at Hove, Joseph John Clarke, L.R.C.P.I., D.P.H., aged 86.

Dawes.—On Feb. 21, 1948, at Edenbridge, Kent, Christopher Dering Dawes, M.R.C.S., L.R.C.P., Lieutenant-Colonel, late I.M.S., aged 75.

Durran.—On Feb. 22, 1948, at Edinburgh, Donald Edward Durran, M.B., Ch.B.Ed.

Gardner.—On Feb. 27, 1948, at "Coombehurst," Church Stretton, Shropshire, Henry Willoughby Gardner, M.B.E., M.D., F.R.C.P., aged 86.

Hunter.—On Feb. 24, 1948, at Hutton House, Chilton, Ferry Hill, Co. Durham, Matthew Hunter, M.B., Ch.B.Glas.

Laing.—On Feb. 27, 1948, at 5, Princes Street, Arbroath, David Laing, T.D., M.D., aged 86.

McLean.—On Nov. 30, 1947, at Sydney, N.S.W., Leonard Allen Windsor McLean, M.B., Ch.B.

McVean.—On Feb. 26, 1948, at 24, Forest Road, Bournemouth, W., John Duncan McVean, M.B., C.M.Glas., aged 88.

Martin.—Recently, at 11, Waterloo Avenue, North Strand Road, Dublin, Conor Martin, M.B., B.Ch.

Mathias.—At Burry Port, Idwal James Mathias, M.B., B.S., aged 33.

Pilliet.—On Feb. 14, 1948, at a Nursing Home, Folkestone, Mary Amelia Pilliet, M.B., Ch.B., of Wingate Villa, 210, Canterbury Road, Folkestone, Formerly Assistant Medical Officer, London County Council.

Pollard.—On Feb. 25, 1948, at Royal Halifax Infirmary, Percy Lund Pollard, M.B., Ch.B., of East Lea, Lea Avenue, Halifax, aged 66.

Rivers.—On Feb. 28, 948, at Redruth, Cornwall, Charles Henry Rivers, M.D., M.R.C.P., aged 76.

Rogers.—On Feb. 25, 1948, Alford Rogers, L.R.C.P.&S.Ed., of Montrose, Sewardstonebury, E., and late of Highams Park, Chingford, E.

Smith.—On Feb. 28, 1948, at Ashfield Park, Clogher, Co. Tyrone, N. Ireland, Henry Smith, C.I.E., M.D., M.Ch., M.A.O., Lieutenant-Colonel, late I.M.S., retired, aged 90.

Tavendale.—On Feb. 28, 1948, killed in a car crash, William John Tavendale, M.B., Ch.B., aged 32.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Killing Habits of Leopards

Q.—*In this area (Nigeria) a leopard society is active, and I often have to decide at post-mortem examination whether death was due to human or animal killing. I should therefore like to know: (a) How does a leopard usually kill, and what marks would be expected? (b) What part of the body is a leopard likely to eat first? (c) Will leopards eat intestines when muscle (of leg, etc.) is present? (d) Is it possible for a leopard to sever skin to simulate an incised wound?*

A.—The leopard, like the lion, hunts by night, but, whereas the lion usually hunts in company and only when hungry, the leopard hunts alone and displays a greater inclination towards hunting and killing for their own sake. He is likely to lie in wait, probably in a tree, from which he springs down on his victim. At the moment of impact the claws sink in to establish a grip, from which there is little or no chance of release, and the teeth are plunged into the neck, either at the back or front, depending on the readiness of access. Possibly the victim's throat will be torn out, and the blood drunk as it flows from the wound. Thereafter the leopard, like the lion and a number of other animals, will show a preference for the entrails of the victim, to which access is obtained by tearing open the abdomen with claws and teeth. The muscular portions of the body are likely to be ignored. The body will be dragged into cover for the latter part of the leopard's activities. This summary of the killing habits of the leopard is based on opinions expressed by Mr. T. H. Gillespie, F.R.S.Ed., F.Z.S. It supplies most of the details requested and also goes a long way towards answering the basic question, which may be paraphrased as follows: How is one to form an opinion on whether a killing has resulted from a genuine attack by a leopard or from an attack by men endeavouring to simulate the work of a leopard?

As in a variety of other medico-legal problems, it seems probable that the answer may depend at times not only on the post-mortem findings but on the fullest possible investigation of *all* the available evidence, including the identity of the victim, the presence or absence of motive, the time and place of the killing, signs of disturbance or human activity at the locus, signs of dragging, etc. No doubt the men of a leopard society may at times be extremely sedulous in their efforts, and for this reason such seemingly important details as the presence of claw-fragments or leopard's hair might not be conclusive evidence. The demonstration of specific saliva stains would probably be impossible or impracticable. Certain of the wounds produced by a leopard might undoubtedly *resemble* incised wounds, but the presence of true incised wounds would be strongly suggestive of some other agency. It is improbable that "leopard men" can avoid all inconsistencies and discrepancies which are detectable if looked for carefully. The opinion of the doctor may be an important factor in assisting the investigating authorities in coming to a decision, but it is unlikely to be the only one. Conversely, the doctor should acquaint himself with all possible information on the case before making his examination and forming an opinion.

In an interesting book entitled *Human Leopards*, by K. J. Beatty (Hugh Rees, Ltd., London, 1915, now out of print), the activities of leopard societies in Sierra Leone are discussed, and accounts given of a number of trials which took place there in 1912 and 1913. Apparently a three-pronged knife was sometimes used to simulate the claws of a leopard, but in spite of this and of the fact that the murderer(s) might wear a leopard skin, it does not seem that the methods employed ever bore any very baffling resemblance to a true leopard killing.

Penicillin for Blepharitis

Q.—*How should penicillin be administered, for how long, and in what dosage in a case of blepharitis which fails to respond to routine treatment with sodium bicarbonate lavage and ung. hydrarg. oxid. flav.?*

A.—Patients with blepharitis are usually either under- or ill-nourished. Attention to the general health is therefore a first consideration. Lavage with sodium bicarbonate and the application of ung. hydrarg. oxid. flav. is not a particularly good method of local treatment. It is best to avoid lotions of any kind, as they only make the skin sodden; ung. hydrarg. oxid. flav. is an unsatisfactory medicament, as many people are sensitive to mercury and, moreover, this ointment is unstable and frequently contains highly irritating products of decomposition. Any local treatment of blepharitis requires the removal of crusts before the application of ointments. Crusts are best removed by washing them off with pledgets of cotton-wool soaked in hydrogen peroxide, 10 vol., or olive oil. The lid margins should then be dried and either painted with liquor tinctorium or covered with a thin film of penicillin ointment containing 1,000 units of crystalline (not commercial) penicillin per gramme, the base being a mixture of petroleum jelly and liquid paraffin, 90 and 10 parts of each respectively. The application of liquor tinctorium has the disadvantage that the lid margins are deeply stained. If the application is made only at night most of it washes off with the morning toilet. Penicillin ointment should be used three or four times a day. Blepharitis generally responds to either of these methods of treatment within two to four weeks. Recurrences are, however, likely unless attention is paid to the general health. There is no need for systemic penicillin treatment.

Chronic Suppurating Bone Cavity

Q.—*In the local treatment, apart from surgery, of a chronic suppurating bone cavity would the local application of penicillin and a sulphonamide powder relieve in some degree the offensiveness associated with the discharge?*

A.—A chronic suppurating bone cavity usually becomes walled-in by sclerotic and poorly vascularized bone, in the depths of which the infecting organisms can remain safe from the influence of chemotherapeutic agents, whether they be applied locally or systemically. The cavity may contain a sequestrum which similarly harbours the offending organisms. Moreover, the bacterial infection often becomes a mixed one, and may include organisms which are either naturally immune to chemotherapeutic drugs or which have acquired a resistance to them. These factors unfortunately minimize the possibility of significantly diminishing the offensiveness of the discharge simply by the local application of penicillin and a sulphonamide powder. Nevertheless there could be no harm in trying the effect of such applications, in the hope that by altering the bacterial flora the nature of the discharge might be modified. In cases unsuitable for surgical treatment the odour associated with the discharge can be largely overcome by enclosing the affected part, whether encased in plaster or not, in a bag or sleeve made from special filter cloth. This is a coarse material impregnated with carbon particles. Its use was described by Seddon and Florey (*Lancet*, 1942, **1**, 755), and it has subsequently been found of value in the above type of case.

Secondary Signs of Syphilis

Q.—*Are mucous patches of the mouth and pharynx more common in cases in which the primary sore arose on the lip rather than the genital area? I would be grateful if you could quote me any specific authority on the subject.*

A.—Doubtless mucous patches in the mouth are commoner when the primary chancre is on the lip than when it is on the genitals, since lip chancres are often undiagnosed till secondary signs appear. There is, however, no reason to suppose that the site of the chancre determines the occurrence of mucous patches, since these lesions are "secondaries" and correspond to rashes of the skin; they are merely evidence of generalization of the infection and of the spirochaetes acting on epithelium. The writer knows of no specific authority on the subject, but the explanation seems obvious when the pathology of the condition is considered: spirochaetes do not cause mucous patches by being transmitted direct from the primary lesion, but by being carried to the mucous membranes in the general circulation.

Pemphigus Vegetans

Q.—*What is the right treatment for a case of pemphigus vegetans? Is the disease incurable and always fatal? Is "stovarsol" by mouth of any value, and, if so, in what dosage?*

A.—Pemphigus vegetans is usually fatal. Sometimes it responds to unfiltered *x*-ray therapy in small dosage and to sulphonamides by mouth. Suramin ("antrypol," I.C.I.) intravenously, 1 g. weekly, may control pemphigus, including pemphigus vegetans. The arsenicals are usually disappointing, but stovarsol has been recommended by M. Oppenheim and D. Cohen (*Arch. Derm. Syph., Chicago*, 1943, **47**, 40–2) in a dose of 0.5 g. half an hour before breakfast on the first day, followed by 0.75 g. for the next two days; then three days' rest, after which treatment is resumed, dosage being reduced and intermissions lengthened. The drug should be stopped if there is pruritus or other ill-effect.

Cataract

Q.—(*a*) *Is it best to leave a cataract unoperated upon so long as the sight of the other eye is fairly good?* (*b*) *Is there any danger in allowing a mature cataract to become hypermature, and will an operation in such a case ultimately become essential?* (*c*) *After a successful operation, can the sight of the eye be so corrected by lenses as to enable reading to be undertaken with fair results and without undue discomfort or strain? Would it be possible to drive a motor-car provided that the sight of the other eye remained fair?*

A.—(*a*) As a good working rule a patient much prefers 6/12, even with a glass, in an unoperated eye which still has some power of accommodation to 6/6 in an aphakic eye with no such power of adjustment. It is impossible to use an operated and an unoperated eye together and so regain binocular vision unless a contact glass is fitted to the aphakic eye. Having regard to the fact that such a glass can be worn on an average only for four hours in the twenty-four, and that many cataract patients are incapable of the manipulation required in putting in and taking out the glass, it is practicable in but few cases. The advantage of regaining the temporal field of vision on what was the blind side is sometimes outweighed by an annoying diplopia. Where the cataract is obvious there is cosmetic gain from its removal. All these points must be considered before an operation is performed.

(*b*) A hypermature cataract may very occasionally be ruptured and the lens material escape into the anterior chamber and cause an irritative iritis. Otherwise it is unnecessary to operate.

(*c*) After a successful operation the patient, provided the eye is healthy, can see 6/6 and Ji easily. Reading can be sustained for long periods without strain. So long as the patient can read a number-plate at the prescribed distance there is nothing to prevent him from driving a car. There are many people driving to-day with only one effective eye.

Lichen Planus

Q.—*Can you throw any new light on the aetiology of lichen planus, and what is the latest treatment?*

A.—Nothing very new has been found regarding lichen planus, but there is a growing body of opinion that associates it with an infective agent, possibly a virus. A number of clinical features support that conception, including a resemblance to warts, the occasional zosteriform distribution, the occasional onset after the fashion of pityriasis rosea, and its development in affections originally diagnosed under one of these labels. The provocation of lichen planus by metallic and other drugs and by emotional shock is a further point of resemblance, but no actual virus has been demonstrated. Attempts to cure patients by filtrates made from ground lichen lesions have given indifferent results.

There is no specific therapy, and arsenic and mercury and, more recently, calciferol have their advocates. In the main

the course of lichen planus is suggestive of a psychosomatic disorder, and response to treatment seems often to relate to psychological factors rather than to any particular method of treatment.

Swelling in Boy's Breast

Q.—*What is the differential diagnosis and treatment in the case of a boy aged 14, in perfectly good health, who has been referred to me in connexion with a small swelling in the upper half of the right breast? There is no pain or tenderness on pressure, but what appears to be a tiny cyst can be felt. It seemed to be a case of simple adolescent mastitis, but some question has been raised as to the possibility of new growth.*

A.—The description of the swelling in this boy's breast makes the diagnosis of adolescent mastitis almost certain. The possibility of growth is so remote at this age that in the absence of fixity or accompanying glandular enlargements it can be disregarded. Presumably the effect of rubbing from braces or of other trauma has been excluded. Firm strapping and patience are all that are required in the way of treatment, but if pain is present a course of short-wave diathermy may prove beneficial.

Dextro-amphetamine Sulphate

Q.—*Some proprietary tablets are now on the market the active ingredient of which is dextro-amphetamine sulphate. This drug is of value as a cerebral stimulant; have you any information about the dangers of its use? Is it a habit-forming drug?*

A.—There is no reason to think that dextro-amphetamine has essentially different properties from ordinary amphetamine sulphate, or that the dangers attaching to its use, especially the danger of addiction, are more serious. However, it has not been prescribed widely enough or for long enough for anyone to be sure about this. The danger of addiction with amphetamine sulphate is very small, as there is no tendency to develop tolerance with prolonged use. Accounts have been published of a few patients, all of psychopathic personality, who have taken 50 or 60 mg. daily over prolonged periods; and the psychiatrist sees, very rarely, a toxic confusional psychosis brought on by such a heavy dosage self-administered. There are also a relatively large number of persons who habitually take small doses of amphetamine (5 to 20 mg. daily) for minor nervous symptoms, apparently without ill effect. As a general rule habitual takers can discontinue the drug without much in the way of deprivation symptoms. It may be assumed that the same considerations will apply to the dextrorotatory preparation.

Nocturnal Frequency in Elderly Men

Q.—*Nocturnal frequency of micturition is very common in elderly men. This does not appear to be associated always with an enlarged prostate gland. What other causes produce it, and what can be done about it?*

A.—Nocturnal frequency in elderly men is usually associated with the existence of residual urine, even although per rectum the prostate is not felt to be enlarged. The residual urine should therefore be tested by the passage of a catheter under scrupulously aseptic conditions. The most frequent other causes are infection and polyuria, due to such a condition as granular kidney.

Organisms in Nose and Throat

Q.—*A routine swabbing recently gave the following result: "Streptococcus viridans predominant; no haemolytic streptococcus isolated; right and left nostrils, pure growth of Staph. aureus." Is the presence of Str. viridans in a mother a potential danger to her child? Is it just a normal inhabitant? What treatment would you advise, if any?*

A.—*Str. viridans* is a normal inhabitant of the mouth and pharynx, and is likely to be found in culture from a tonsillar swab in any healthy person. The presence of *Staph. aureus* in the nose, on the other hand, although common, is a morbid condition (pathogenicity being assumed, the best evidence of which is a positive coagulase test). Such nasal carriers can infect patients under hospital conditions (producing, for example, pemphigus in infants and surgical sepsis). Presumably the same sort of thing can happen in ordinary life, and if there are special reasons for safeguarding the health of a particular child the condition might be treated by the insufflation of sulphathiazole.

NOTES AND COMMENTS

Treatment of Chilblains.—E. H. writes: In the answer to "Treatment of Chilblains" ("Any Questions?" Feb. 14, p. 330) I did not see this simple remedy mentioned. I find that both my own and my family's chilblains are cured by two or three exposures to an artificial sunlight lamp applied locally to hands and/or feet. We usually need one course about November when the cold weather starts, and often have to repeat it in January.

Persistent Hiccup.—Col. N. J. C. RUTHERFORD (Farnham, Surrey) writes: I am interested in Dr. J. D. Laycock's letter (Feb. 21, p. 378). Though not wounded in battle I underwent a major operation for cholecystitis in Guy's Hospital during 1933. The condition was complicated by old adhesions and entailed a good deal of pulling about. In 24 hours I started to hiccup and kept it up for eleven days. All the well-known remedies were tried, including CO_2, atropine, morphine, posture, etc. I could eat light meals and sleep when doped, but the moment I awoke I was off again hiccuping. Finally a sailor son insisted on trying a couple of liqueur glasses of Bols, a Dutch aniseed liqueur. Being the eleventh day, this treatment acted as a charm and stopped the hiccups. The late Mr. Fagge, who did the operation, informed me afterwards in his cheery fashion that "he had never seen a fellow hiccup so long and get over it. But he always felt sure that I would survive!" Nobody thought of hyoscine—or pineapple juice.

Noah Morris Memorial.—We are informed that a committee has been convened for the purpose of having erected a students' memorial to the late Prof. Noah Morris, of the Department of Materia Medica, Glasgow University. The committee represents the Students' Representative Council, both Unions, G.U.A.C., the two University medical societies, and *Surgo*—the University medical journal. In view of Noah Morris's high reputation as an outstanding teacher and his keen interest in student affairs it is felt that present and past students taught by him would like to contribute to the memorial. Will those who would like to do so please send donations to the Clerk to Council, Glasgow University Students' Representative Council, Pearce Lodge, The University, Glasgow, W.2. Cheques should be made payable to the Students' Representative Council.

Absence of Orgasm.—Dr. JOAN MALLESON (London, N.W.) writes: I think the reply given under this heading (Feb. 28, p. 426) is somewhat incomplete as it stands. A partial or complete vaginal anaesthesia is an exceedingly common hysterical condition and by no means limited to the obviously "neurotic" woman. Inhibition of feeling can include the clitoris too; it is sometimes total, but more commonly partial, in which case the absence of final orgasm can be very frustrating. It is true that some cases of frigidity are secondary to inadequacy or precipitancy on the husband's side (if so, this fact should have been given in the case history), yet even so, if there were no intrinsic inhibition such a wife would have achieved orgasm—sleeping or waking—during the ten years of marriage. In the average case of vaginal anaesthesia it can be detrimental to imply that the fault lies with the husband, for this may be quite untrue and will inevitably cause the husband to feel baffled and hopeless and the wife to feel critical. Fortunately some cases achieve a considerable degree of improvement during the course of life, and an infinitely small proportion of such cases seek psychotherapeutic help, which may relieve them. Perhaps because there is so little effective therapy for this disorder there is a natural tendency for the patient and physician, and even the old-fashioned sexologists, to search for physical or marital explanations. The former are almost non-existent, and with careful history-taking the husband's contribution can usually be fairly accurately assessed. The physician can at least help by advising about dyspareunia, inadequate lubrication, etc., and by explanation and reassurance.

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